

The Far Eastern Review

ENGINEERING + FINANCE + COMMERCE

A Monthly Review of Far Eastern Trade, Finance and Engineering, Dedicated to the Industrial Development and Advancement of Trade in Far Eastern Countries.

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NO. 3

CONTENTS:

	PAGE		PAGE
Forty-four Years in China (Appreciation of Sir John Jordan)*	133	High Silver Hurts Trade with China	164
China's Engineering Feats: Her Rivers and Roads*	139	China's Great North-West*	165
American Lloyd's in China	143	Morgan & Co.'s New Partners	169
American Trade Sacrificed to Ideals	144	The So-called Student Movement	170
Progress of Likin Abolition Negotiations	147	Japanese Mine at Haichow	170
Chinese Bridges*	148	How Influenza Started in China	170
Shall America Fight for China or Co-operate with Japan?	151	Radio Service on Pacific Extended	171
Electrification of the Abt Rack Rail Section across the Usui Pass, Japan*	154	Rich Mine in the Shan States	171
Hands off in Siberia	156	New Process Molybdenum-Steel	172
Foreign and Chinese Enterprises in China	157	Book Review	172
While America Dreams	158	China's Latest Treaty Relations	173
Land Transportation in the Philippines*	159	Encouragement for Chinese-made Foreign Goods	173
"Little Hsu" and Mongolia	161	Lumber in Fukien Province	173
War Memorial for Shanghai	161	Chinese in Dutch East Indies Want Better Treatment	174
Policy and Finance in China	162	New Steamer Launched at Shanghai	174
The Pacific Cable Question	164	Japan Makes Loan to China	174
		Siberian Trade Impetus	174
ENGINEERING, FINANCIAL, INDUSTRIAL AND COMMERCIAL NEWS	175		

**Illustrated with Maps or Photographs.*

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THE PHILIPPINES

Historical.

Early Philippine history fades away into the history of Chinese foreign adventure and commerce, trading having been carried on between the two countries for a thousand years prior to the Spanish conquest.

Magallanes discovered the Philippines in 1521, about 100 years before the Pilgrim Fathers landed at Plymouth Rock. Spaniards settled Cebu, 1568. Legaspi occupied Manila, 1570. British captured Manila, 1762.

United States occupied Manila August 13, 1898. Treaty of Paris signed December 10, 1898. Filipino insurrection began February 4, 1899. First provincial government organized (Pampanga), February 6, 1901. First American Civil Governor, William H. Taft, July 1, 1901. Philippine Act passed July 1, 1902. Jones Act passed August 29, 1916.

Geography.

The Philippine Archipelago extends from the Batanes Islands in the north to the Tawitawi group at the southern end of the Sulu islands, a distance of 1,152 miles. The archipelago is composed of 3,141 islands, of which 400 are inhabited.

Area of Archipelago.

	Square miles.
Total area, land and water	832,968
Land	127,825
Water	705,115

Comparative Areas.

	Square miles.
Philippines	127,853
British Isles	120,973
New York, New Jersey, Pennsylvania, and Delaware	104,970
Japan	147,649

Luzon islands is as large as Denmark, Belgium, and Holland combined. Mindanao is about equal in area to Portugal.

Distribution of Area.

	Square miles.
Forest land	72,000
Commercial forest	61,000
Cultivated	14,000
Grass lands	20,000
Unexplored	14,000

Forest lands contain some 747 native tree species; 50 to the acre in some parts. Mindanao has 423 varieties. Over 200 varieties come to the

Manila market. One-half of the forest land is virgin.

Cultivated Land.

	Acres.
Rice	3,000,000
Hemp	1,236,000
Coconuts	680,000
Corn	1,070,000
Tobacco	145,000
Sugar	445,000
Magney	76,000
Cacao	2,600
Coffee	2,000

Comparative Cultivation.

Japan and the Philippines : Japan with 14,000,000 acres of arable land produces crops to the value of Ps.2,000,000,000. Philippines with 7,000,000 acres produces only Ps. 200,000,000.

Population.

Total from latest (1917-18) Philippine Health Service records : 9,500,000.

Christians	8,730,000
Mohammedans	275,000
Non-Christians and Pagans	595,000

Japanese	42,800,000
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Progress of Population.

1735	837,182
1805	1,741,234
1826	2,593,287
1840	3,096,031
1862	4,734,533
1887	5,984,727
1896	6,261,339
1917-18	9,500,000

Climate.

Average temperature for 30 years : 80° Fahrenheit.

Dry temperate months : November, December, January, and February.

Intermediate months : March, July, August, September, October.

Hot months : May and June.

Rainfall.

Maximum days of rain in July, August, September.

Minimum days of rain in February and March.

Dry season : November to May, inclusive.

Wet season : June to October, inclusive.

Typhoons : Frequent in July, August, September, and October.

Mountains.

	Feet.
Apo	10,312
Pulog	9,450
Mayon	8,970
Halcon	8,865
Malindang	8,197
Canlaon	8,192
Ste. Tomas	7,418
Data	7,364
Banajao	7,382
Pagsan	7,339
Isarog	6,450
Pinalobo	6,137
Cristobal	5,288
Bulusan	5,100
Maquiling	4,783
Arayat	3,564
Talim	1,519
Taal	1,050

There are 50 volcanoes in the archipelago, of which 20 are active and 30 are extinct.

The principal active volcanoes are Taal, Canlaon, and Apo.

The principal extinct volcanoes are Talim, Maquiling, Cristobal, Banajao, and Isarog.

Rivers.

	Miles
Grande de Pampanga	220
Pulangi, Mindanao	300

Other rivers of importance are the Agno Grande, Grande de Pampanga, Agusan, and Pasig.

Mindoro has 60 rivers and Samar 26, none of them of commercial value.

Real Estate Values.

[1 peso = \$0.50].

Manila	Ps.104,024,000
Provinces	392,180,000

Mortality (Americans and Europeans) per 1,000 (1917-18).

Manila	8.0
New York	16.5
San Francisco	15.0
Chicago	14.0
Glasgow	18.0
Belfast	22.0

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American Trading Co.	Back Cover	Escher Wyss & Cie., S. A.	33	McClintic-Marshall Products Co.	45	Shanghai Municipal Council	77
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Andersen & Co., A. O.	84	Furukawa & Co., Ltd.	88	Merchant Shipbuilding Corp.	180	Shantung Railway	73
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Arnhold Brothers & Co., Ltd.	35	Grace & Co., W. R.	72	Mitsubishi Zosen Kaisha, Ltd.	72	Siebo Gorman & Co., Ltd.	44
Asia Banking Corporation	8	Grant, Robert	47	Mitsui & Co., Ltd.	34	Sino-North American Co., Ltd.	47
Athenia Steel Co.	75	Green Island Cement Co., Ltd., The	60	Mustard & Co.	75	South Manchuria Railway Co.	12
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Austin Company, Inc., F. C.	89	Han-Yeh-Ping Iron & Coal Co., Ltd., The	64	Nesbitt, Ltd., A. & W.	30	Standard Underground Cable Co.	50
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Baldwin Locomotive Works	27	Hing Wah Paste Manufacturing Co.	81	Niles-Bement-Pond Co.	77	Stewarts & Lloyds, Ltd.	44
Bank of Communications	6	Holliday & Co., Ltd., L. B.	30	Nippon Yusen Kaisha	28	Sullivan Machinery Co.	70
Bank of East Asia	9	Hongkong & Shanghai Banking Corporation	5	Nobel's—Glasgow	36	Sumitomo	69
Bank of the Philippine Islands	Cover	Hongkong & Whampoa Dock Co., Ltd.	58	North-China Daily News	90	Thornycroft & Co., John I.	1
Banque de l'Indo-Chine	4	Imperial Japanese Government Railways	18.19	North China Union Language School, Peking	45	Tokyo Electric Co.	50
Banque Industrielle de Chine	5	International Banking Corporation	3	Osaka Shosen Kaisha	86	Truscon Steel Co.	65
Bank of Taiwan, Ltd.	4	International General Electric Co., Inc.	57	Pacific Mail S. S. Co.	28	Trimont Manufacturing Co.	51
Briggs & Sons, Ltd., W.	79	Irving National Bank	178	Park-Union Foreign Banking Corp.	9	Turner, Halsey Co.	83
British-American Tobacco Co. (China), Ltd.	46	Jacobs Manufacturing Co.	49	Pease Co., C. F.	85	United Metals Selling Co.	37
Brown, Junr., David	63	Jardine, Matheson & Co., Ltd.	52	Pekin Syndicate, Ltd.	42	United States Steel Products Co.	16.17.76.79
Brown Shoe Co.	62	Jones & Lamson Machine Company	41	Pittsburgh Testing Laboratory	91	Union Insurance Society of Canton, Ltd.	93
Bucyrus Company	84	Johnson Pickett Rope Co.	92	Ports of the Orient	75	Vickers (Leeds) Engineering Co., Ltd., B. R.	89
Butterfield & Swire	56	Kawasaki Dockyard	70	Pratt & Co., Ltd. F.	44	Wah Chang Mining & Smelting Co.	74
Canton-Kowloon Railway	22	Kiangnan Dock & Engineering Works	31	Raleigh Cycle Co., Ltd.	32	Walker & Sons, Ltd., Wm.	31
Canada Carbide Co.	75	Kuhara Mining Co.	68	Ralston Steel Car Co., The	53	Watts, Inc., Frank E.	55
Champion Spark Plug Co.	79			Rendrock Powder Co.	63	Whittall & Co., Ltd., J.	2
Chartered Bank of India, Australia & China	40			Roe & Co., A. V.	43	Williams & Co., J. H.	43
Chicago Bridge & Iron Works	84			Royal Bank of Canada	9	Wisconsin Electric Co.	83
China Electric Co., Ltd.	59.78			Russo-Asiatic Bank	5	Worthington Pump Co., Ltd.	40
Chinese-American Co.	39			Ryerson & Son, Joseph T.	61	Yokohama Seiko Kaisha	80
Chinese Government Railways	11.13.14.15.20.21.22.24					Yokohama Specie Bank, Ltd.	7
Clegg & Son, Lewis	30					Yarrow & Co., Ltd.	Cover
Consolidated Steel Corporation	26						
Coventry Chain Co.	89						

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THE

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FAR EASTERN REVIEW

ENGINEERING FINANCE COMMERCE

Partial List of Contents

Career of Sir John Jordan in China

American Trade Sacrificed to Ideals

China's Engineering Feats

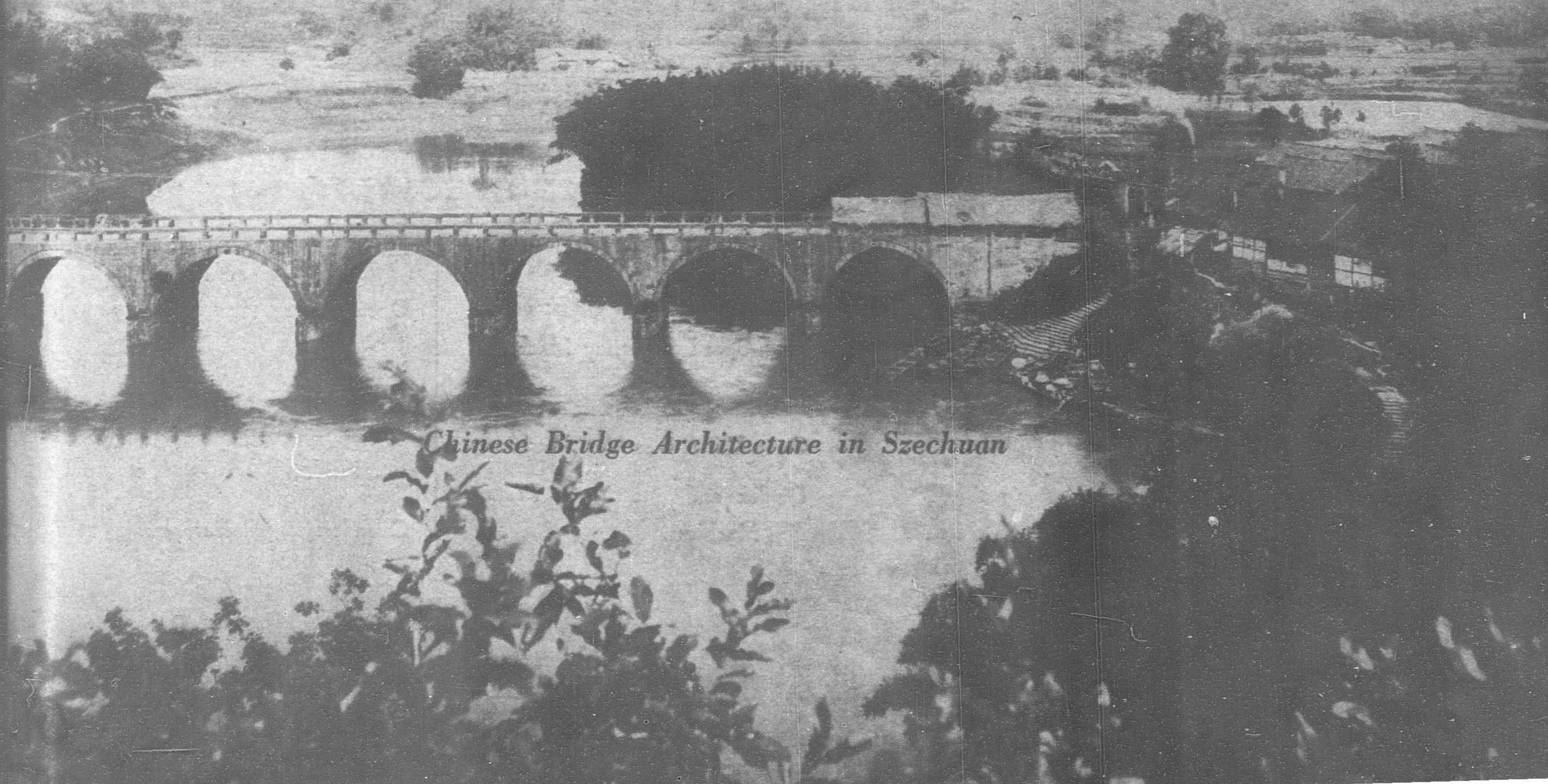
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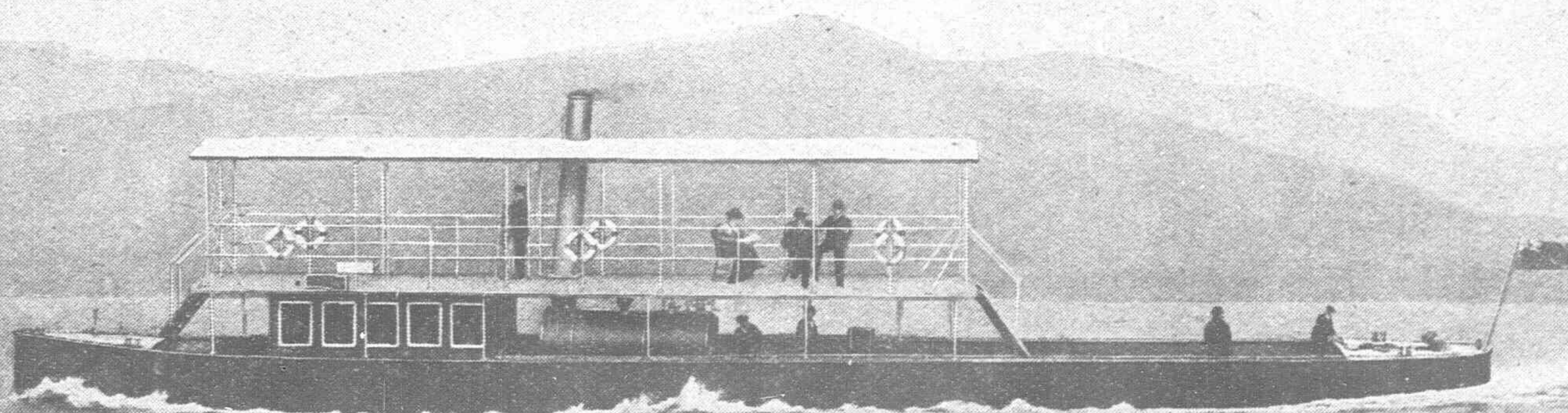
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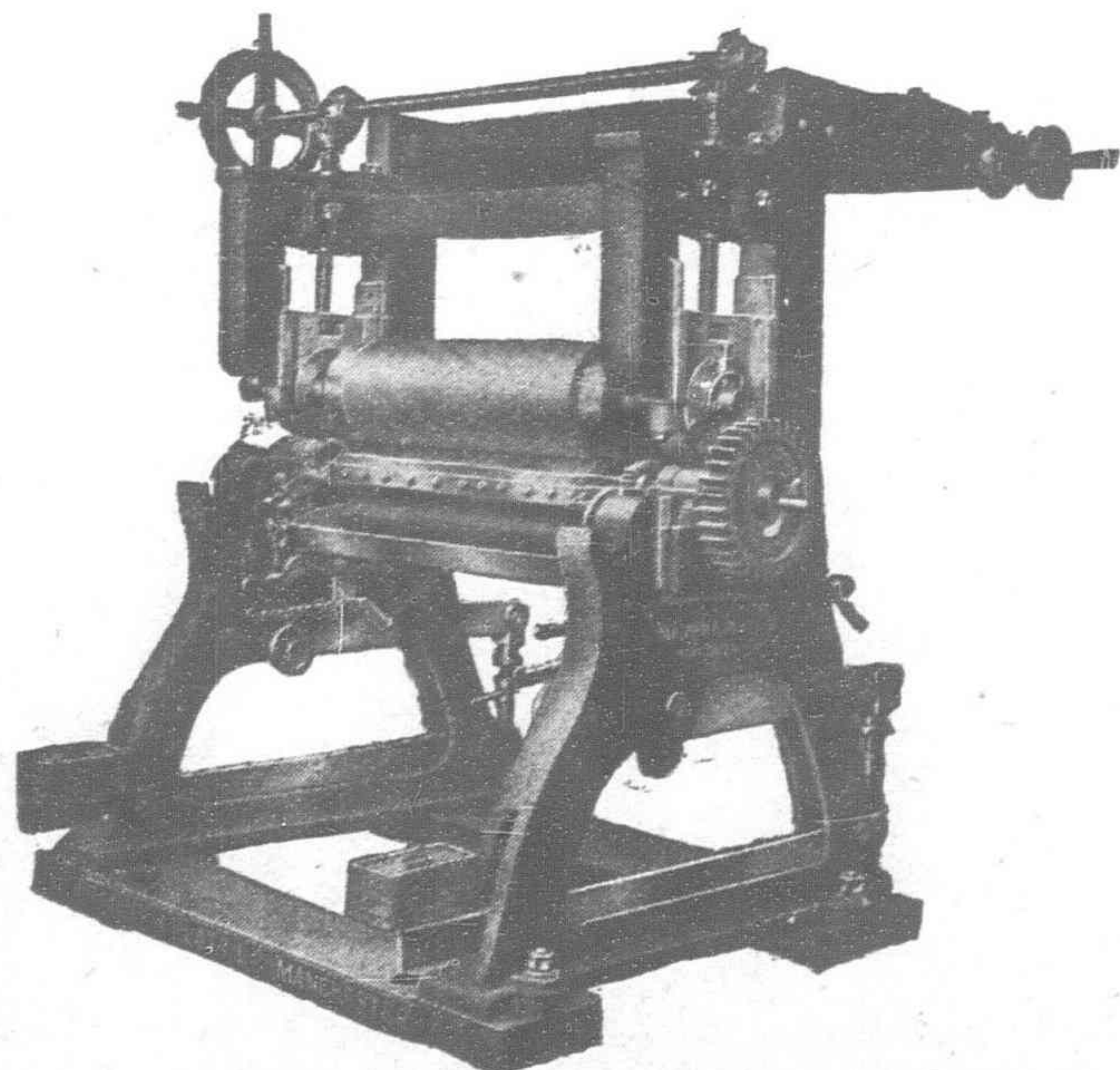
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Envoy Extraordinary and Minister Plenipotentiary for Great Britain to the Republic of China.

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ENGINEERING

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SHANGHAI, MARCH, 1920

No. 3

Forty-four Years in China

An Appreciation of Sir John Jordan's Forty-four years of Service as a British Consular and Diplomatic Official and as a Consistent and Devoted Friend of the Chinese People

By Rodney Gilbert

THOSE of us who have been in China a few years have observed that Chinese affairs travel in little cycles; that each cycle seems to end where the other began, and that at the end of each, China seems to be poised on the brink of utter destruction. Most of us who return to our homes in the Occident have little to predict of China's future and little hope to extend of her eventual regeneration. Those of us who are really interested in China's welfare should, therefore, take heart when a man who has spent more than forty years in China—who with a shrewd and practical mind is in a position to review modern Chinese history from the time when her highest officials believed that our homelands were little islands in the four seas, just off the fringes of China's great bulk, inhabited by upstart savages—dwells with great earnestness upon the good qualities of the Chinese people, and, as an intimate student of their many failures, still predicts for them complete regeneration and a great future under a competent democratic government. Sir John Jordan, who with unparalleled experience in China and with a perfect memory can sit down and unfold over a cup of tea a perfect panorama of China's whole modern history, is about to return to his home believing sincerely in China's worth and in her future. One has to know him personally to be assured that sentiment does not influence his judgment and that he is neither an idealist nor an optimist in the invidious senses in which these terms are so often used.

Sir John Jordan was born and grew up a few miles from Belfast, in a part of Ireland in which both ideals and theories have to show practical and tangible results to be accepted, and in which emotionalism has as little influence over judgment as in any known quarter of the earth. If

The Right Honorable Sir JOHN NEWELL JORDAN, P.C., G.C.I.E., K.C.B., K.C.M.G., Envoy Extraordinary and Minister Plenipotentiary for Great Britain to the Republic of China, has retired and will leave Peking on March 3rd and will sail from Shanghai for England on March 6th. On the 10th of March, 1876, Sir John Jordan was appointed a Student Interpreter in China, so for a few days less than 44 years his interests have been officially centred in the affairs of China and his Government's relations with this country, and there is every reason to believe that for the rest of his life his personal sympathies and interests will be centred in the Chinese people to whom he is a most devoted friend after all these years of close association. His Government has shown its appreciation of his services in the many honours and decorations conferred upon him. We desire to express the appreciation which nearly every patriotic Chinese and certainly every Occidental resident in the Orient feels for his services to China, to the improvement of Sino-foreign relations, and to future generations in China which will benefit by the liberal policy which he has preached and inaugurated.

there is any people on earth whose opinions and actions are ruled by reason and experience, it is the Scotch-Irish. But they are a people ruled absolutely by their convictions, consistent in their adherence to such ideals as their experience teaches them are sound and practical, and conscientious to the limit of obstinacy in the pursuit of what they believe to be correct policy. Sir John Jordan has been throughout his career in China typical and representative of his race; and as he now leaves China an optimist and a fond friend of the people whom he has seen and known from every angle, we can rest assured that he bases his hopes and his judgments upon his experience and upon reasonable deductions from his experience.

The political creed of a man who has been so long in China and whose opinions will probably guide British policy in

the Far East for many years to come, will undoubtedly be of interest to everyone who is attempting to peer into the future of Oriental affairs. The burden of every report which Sir John Jordan has written to his home government in recent years and the foundation upon which all of his advice to Chinese officials has been built is epitomized in the following brief *credo*, which has been given the writer by a British official who has had exceptional opportunities for several years to familiarize himself with all of the British Minister's correspondence and with his intimate thoughts as well:

"The best interest of China is the best interest of the world.

"China is not really distracted with internal conflict—except on paper.

"The credit of China is based in the soil and the people—both productive.

"Communications make unification possible in all branches.

"China has no Government in the modern sense because she has never needed one before.

"China has always had effective local government and the representative, democratic Government will come with railways and other communications and educational mediums."

It is Sir John Jordan's sincere belief that it will be to the ultimate advantage of every country which has, or hopes to have, commercial and financial interests in China to assist in the development of a strong, united and independent China, and that the only practical diplomacy will be such as is honestly designed to develop in this country the means of communications, the educational facilities, and the mediums of expression for China's growing public opinion which are essential to a democracy. Foreign interests, in his mind, coincide with China's best interests, and the policy which is most helpful to China serves not only Great Britain but every other country which hopes to have a share in the development of the Far East. Twenty years ago the China policy of the Occidental powers was very far removed from any such standard. At that time it would have sounded dangerously unpractical; but now after a course in the new ethics evolved by the Great War, there does not seem to be much novelty in it. One has to realize that Sir John Jordan has preached this doctrine to Chinese officials and to foreign diplomats for a score of years to realize how original he has been in his policy, how consistent he has been, and how great a part he has played through his advices to his own government in reshaping the world's attitude towards China.

The Fruits of Straightforwardness

Something of this every Chinese who has his country's interests at heart now appreciates, but it would be untrue to say that all of Chinese officialdom understands the retiring Minister's policy or that this attitude has endeared him to all. He has been too frank a critic of the shortcomings, the flagrant offenses against the public welfare and the still more flagrant weaknesses of many of China's officials and politicians, who are notoriously their country's worst enemies, to endear himself to them.

The average Chinese official has about as deep an appreciation of the man who tells him the unadulterated truth as a child has of an unsweetened medicinal potion. The Chinese who is busy serving his own interests and concealing his faults, dearly loves the man who is blind to his crimes, blandly credulous of his impositions, tolerant of his criminal procrastinations, sympathetic with his weaknesses, and generally gullible and good natured. The man who bluntly brands his peculations as thefts, his evasions as lies, and who pounds the table when he would seek relief from an embarrassing situation in polite persiflage and delay, the Chinese official comes in time to fear wholesomely and to respect, but he has to know him many years indeed and to be wholly convinced of the honesty and friendliness of his motives, to value him either as an associate or as a friend. It has taken Chinese officialdom—even the honest element in it—many years indeed to appreciate Sir John Jordan. Had he left this country ten years ago Peking would have heaved a sigh of relief and have prayed for a less capable and a more pliant man in the British Legation; but now one of the richest rewards for Sir John's many years of hard work along the lines of straightforward diplomacy, is certainly the consciousness that not only hundreds of the officials with whom he has associated, but thousands of truly pat-

riotic Chinese whom he has never met, realize the services which he has done China, and are paying tribute to him in their sincere regrets for his departure.

To every Chinese who has really had his country's interests at heart, Sir John Jordan has always been a mild-mannered, kind, approachable and sympathetic friend, lavish of his time and of his best work; but to those who have been self-seeking, who have deliberately opposed China's development, he has always been a lowering and ominous spectre, whom they were only too eager to conjure out of the Capital. This latter element is fairly well represented in Peking now and there is no doubt that there are many Chinese who will welcome a change of régime in the British Legation, nor would there be any point in denying this since it redounds altogether to Sir John's credit and, in the light of what we have written of Chinese officialdom's taste in diplomats, is a sufficient explanation in itself of what is the matter with China.

Early Days with Historical Personages

Sir John Jordan was born on September 5, 1852, in a small seaside town about ten miles from Belfast, and up to the time of his appointment as Student Interpreter in China he had not travelled very far afield from his native environment. He took his degrees at Belfast University and subsequently accepted an assistant professorship of classics. The desire to come to Japan prompted him to take the consular examinations, but after he and four others had passed the examination, only one appointment was available in Japan and Sir John, with the three fellow aspirants to consular dignities, came to China as a Student Interpreter, and before the year was out found himself established in what is now the main office building of the Legation.

Sir John's memories of those early days are colored with personal impressions, and not so much with the political significance of events and people. There are not many persons now living in China who remember him as a student. Perhaps Sir Alexander Hosie and Mr. Ku Hung-ming are the only two residents of Peking who are in a position to speak of Sir John Jordan's student days. He is described as an industrious student, and as a vigorous exponent, at the same time, of outdoor life. He rode a great deal, spent much of his time in the Western Hills, and is remembered as a tall and physically active young man.

After the completion of his preliminary studies at the Legation, he held five minor consular positions in rapid succession, and ten years after his arrival in China, having served his apprenticeship all along the coast from Newchwang to Canton, he returned to the legation as accountant in 1886, and in this year attended, as one of Sir Thomas Wade's suite, the second Imperial Audience granted to foreign ministers in the history of China; and there for the first time saw the Emperor Kwang Hsü seated in state and surrounded by all the panoply of the Manchu Imperial Court. He remembers principally that there was a great deal of formality and very little said, and that everyone was pleased to have the ceremony over with after the endless negotiation and bickering about small ceremonial details, the place of reception, and other matters which were considered of the greatest importance in those days. He remembers seeing Tso Tsung-tang, whose military genius restored Kansu and Turkestan to the Chinese Empire, and was impressed by the modesty and quiet manner of the little General. Prince Ching, who afterwards rose to supreme eminence in Chinese affairs, still figures in Sir John's recollections as a young man of small stature, remarkably neat and dapper in his dress, with a fresh complexion and bright red cheeks.

For ten years Sir John was a student at the legation in Peking, and was successively Accountant, Acting Assistant Chinese Secretary, Acting Chinese Secretary, Assistant Chinese Secretary, again Acting Chinese Secretary, then Chinese Secretary, and finally Second Secretary of the Legation. During this period no great questions arose, and there were no such stirring times as were to follow immediately before and after the Boxer trouble, but diplomacy in China at that time presented peculiar difficulties, and at the same time, as Sir John points out, peculiar compensations.

The Tsungli Yamên, the Office of Foreign Affairs, was still little more than an innovation, and the high Chinese dignitaries who were forced to assemble there and debate matters with the diplomatic agents from abroad, were not inclined to make things easy for such people as interpreters and secretaries. In those days many of the high officials were from Hunan and other Southern provinces, and spoke atrocious dialects. They would open a question and discourse upon it to their hearts' content, and then when a reply was made, and the unhappy Chinese Secretary, who was acting as interpreter, was making his best effort to put his response into good and effective Chinese phraseology, the high ministers of state would gossip about their dinners and their clothes, asking the price of each other's silks and furs, and otherwise making matters as distracting and embarrassing for the speaker as possible.

Sir John chuckles about these sessions now, and since he has always had a very genuine sense of humour, he probably chuckled in those days after his irritation had worn off, but it was in those gatherings that he acquired a distaste for Chinese pettyfogging, which has since inspired him to insist upon direct and straightforward discussions in the Waichaiopu. Sir John still protests, however, that there was some satisfaction in fighting things out in the old Tsungli Yamên because when you had once reached a decision, you felt fairly certain that the matter would go directly to the Emperor, and would receive his sanction, and in those days that was really the end of a question. When you saw the edict come out with the Imperial Seal upon it, you knew that there would be no quibble or debate from the provinces, and that the settlement of whatever case you had brought up, was thenceforth law in China. "It is very different now," says Sir John, significantly.

China's Humiliation by Japan

The next ten years of Sir John Jordan's life were spent in Korea. These were ten of the most interesting and thrilling years of China's modern history—the period of the old Empress Dowager's real autocracy. It was during this period that the reformers influenced the Emperor, and tried to inaugurate radical changes in the Manchu régime, for which the Emperor was incarcerated and the reformers either decapitated or exiled. The great Boxer movement, the period of foreign concession hunting that preceded it, and the period of chastisement for China that followed, all came within the epoch of Sir John's diplomatic work in Korea.

Before he left to take up his post as Consul-General at Seoul, however, he witnessed from Peking, China's great humiliation at the hands of Japan. The Sino-Japanese War of 1894 was a great humiliation for China, and as Sir John says, it was after China's defeat that Chinese officials first began to think and talk in terms of millions. The elder Prince Kung, who had been in disgrace for some years, was recalled during the war, to favour, and took some part in the peace settlement. Sir John remembers this old man's consterna-

tion when it was announced to him in a conference, that China would have to pay Japan an indemnity of Tls. 230,000,000. The old man was very nearly in tears, and he made vain efforts to comprehend the figures, first in his mind and then on his fingers. Sir John contrasts this attitude of the Manchu guardian of the Exchequer, with the modern Chinese financier, who contracts loans simply by talking glibly in millions, and has no idea who will pay the interest, or who will repay the principal. The Manchus at least felt some public responsibility for the money which they handled, while the modern Chinese financier, as Sir John points out, lacks the same sense of responsibility, and is content in the realization that he will not be in office when the time comes for repayment.

It was about this time that Sir John knew and saw much of Li Hung-chang. He remembers him as a somewhat over-rated and very conceited official, whom he personally holds responsible for initiating a system of Chinese diplomacy which he feels sure was the direct cause of China's collapse and humiliation. Li was the man who inaugurated the Chinese game of playing one power against another, of making small concessions to each in the hope of getting substantial support in resisting the claims of the others; and he regards Li Hung-chang's trip to Russia, when he is said to have signed the mysterious Cassini Convention, as China's first great diplomatic *faux pas*.

Delightful Reminiscences of Korea

In Korea, Sir John Jordan was first appointed Consul-General, then in 1898, he became Chargé d'Affaires at the Korean Court, and in 1901 was appointed Minister. At the time of Sir John's arrival in Seoul, the Russians were busy trying to discomfit both the Chinese and Japanese. This was the period in which all foreign powers were busy pledging themselves to maintain the integrity and independence of Korea, and during which the Korean potentates were equally busy trying to propitiate any and everyone who could help them in their troubles with both the Chinese and the Japanese.

Sir John Jordan first met the Emperor of Korea in the bathroom of the Russian Legation, where the monarch was then in sanctuary. This was immediately after the murder of the Queen of Korea, and His Imperial Majesty was not inclined to reside in the Palace, so had taken refuge with the Russian plenipotentiary, who had accommodated him with quarters. Many things which have since been advertised to the world as gross burlesques upon government and justice in China, Sir John first saw in Korea. Bribery, corruption and intrigue were the daily order, opium was the national curse, and the farce of adviserships was played as it has never been played in China. Anyone who happened along and could get an introduction at Court, in a good suit of clothes, could get an advisership at \$300 a month and a house. It was a regular thing in those days for retired French officers from Indo-China, who did not care to return to their homes, to come to Korea and take service with the Government in advisory capacities.

Sir John remembers, with no little relish, the unique figure of General Clarence Greathouse, an American who had once had some standing and reputation in San Francisco, and who contrived to gain no little influence over the Korean Emperor. For some years after Sir John's arrival in Seoul, Russian diplomacy was energetic and insistent, but after the Russians had obtained their lease of Port Arthur, they were less interested in Seoul, and a Military Guard which the Russian Minister had supplied to the Emperor, was withdrawn. General Clarence Greathouse then conceived the idea of having an International Bodyguard for

the Emperor. He called at the Palace, had a Mandate drawn up authorizing him to enlist such a guard, and persuaded the Emperor to affix his own great black seal to the document. He then went to Shanghai, and enlisted, on the authority of the Emperor of Korea, twenty-seven picked men of various nationalities, all of whom were persons of education and previous good repute, who for one reason or another had turned soldiers of fortune or gentlemen rovers. Each was given a year's contract and one fine day General Greathouse appeared in Seoul with twenty-seven handsome young men, arrayed in frock coats, and all the appurtenances of fashion, and proceeded to introduce them at the various legations. Some were Americans, some British, some French, and there were some of other nationalities. Five of them were British, and when General Greathouse lined them up in Sir John Jordan's reception room, the five British members of the guard, were in the foreground, and the General made a little speech, which he opened in this fashion: "Here they are, Mr. Jordan, fit to grace any lady's parlor," and as Sir John still admits, they certainly looked the part, and acted it. At the end of the day General Greathouse was congratulated upon his achievement, and all Seoul was prepared to receive the guardsmen into its most select social coteries, but the guardsmen had other plans and displayed other inclinations. They proceeded to paint the Korean capital red, and celebrated their arrival in a fashion which was absolutely unprecedented, even in a town which had entertained a Russian bodyguard. Day and night for three weeks the city reverberated with their festivities, and General Clarence Greathouse was driven nearly to distraction, trying to round them up and refit them for the parlors of Seoul. In this he failed utterly, and after the various legations had conferred upon the matter and had consulted with the Korean Emperor, the twenty-seven gentlemen were paid their salaries for a year and were requested to leave, their riddance being considered cheap at any price.

While Sir John was British Minister in Seoul, he was also China's chief diplomatic representative in that capital. In this capacity his chief collaborator was Mr. Tang Shao-yi, and Sir John gratefully testifies that he was a most assiduous and conscientious worker, correct in all his attitudes, and extremely helpful in every respect. It was during these ten years that he came to know and greatly admire Marquis Ito and Baron Hayashi. He and Hayashi became fast friends and he has continued to be a staunch admirer of this conscientious Japanese diplomat. He firmly believes that if Baron Ito had lived, Japan's policy on the mainland, would have been utterly different, and that Hayashi has been called upon to play a part, both in Korea and China, which is directly counter to his principles.

In Korea Sir John learned to have the same sympathetic interest in that country's welfare and in the Korean people which he has since displayed in China. He says that the power of the Koreans to demonstrate, and to organize the kind of pacific resistance which is now baffling the Japanese administration, has been no surprise to him, and that even in the old days it was the custom for the populace to come and sit in silent masses before the Palace, by way of protest against measures of which they did not approve. Opium and official corruption had, at the time of his residence, however, eaten into the very fibre of their Government, and their officials showed pathetically little ability as executives. There is no doubt that in his attitude towards evils and malpractice in China, Sir John Jordan has always had in the back of his mind his knowledge of Korea and the reasons for Korea's downfall. If the Chinese had as good an understanding of Korea's modern history as Sir John has, they

would perhaps be as impatient of their own tendencies towards degeneracy as Sir John Jordan has frequently been.

The British Legation at Seoul was withdrawn in the early spring of 1906, and Sir John Jordan went home on a furlough. On May 31, 1906, he was appointed Minister to China. From this position he was practically retired in 1916. It will be observed that his career up to this time was marked in even decades. He served ten years' apprenticeship as Student Interpreter, Vice-Consul, and the like; then ten years in the legation doing routine work of the Secretariat; then ten years in Korea, and finally ten years in China as Minister. Throughout these forty years he had been regarded as an exemplary British official, scrupulously careful of British interests, and an efficient official agent. The few years which Sir John Jordan has served over these four decades, have been sufficient to give everyone in the Far East a very different impression of him from anything gained before, and have really been the years in which he has come to be appreciated. It is well to emphasize this before returning to a review of his career as Minister from 1906 to 1916. It is on his achievements in these ten years that Sir John Jordan himself dwells when he is reviewing his own career, which by the way, he does with peculiar reluctance, and with a marked disinclination to say anything about himself. If you were to ask him pointblank what he has done for China, he would reply with some hesitancy that the two achievements which have really given him satisfaction are the suppression of the opium trade, and the establishment of the salt gabelle. Without any view to belittling these works, most of his intimate friends would probably agree that he has made a much deeper impression upon China, and has had much more to do with the construction of a vital British policy in China, during the few years that he has been back from what was popularly believed to be his retirement, than in all the previous four decades. This will bear later discussion.

Sir John's Idea of Yuan Shih-kai

During the period of his ministry in Peking, nothing made so profound an impression upon Sir John Jordan's mind, not even the revolution, as the personality of Yuan Shih-kai. Sir John believes that he is the greatest Chinese whom he has met in China during his long residence, and that he was the most sincere Chinese patriot. While we were walking circles about the tombs of the Empress Dowager's ancestors, west of Peking, a few weeks ago, Sir John said with unusual energy and conviction: "That man would have given his life for his country at any time, and in fact he did give his life for his country at the end." The British Minister had an intimate knowledge of all the negotiations which ended in the final abdication of the Manchus, and the creation of the Republic. He avers stoutly that at this time Yuan Shih-kai showed every consideration for the Manchus, that he made every effort to stave off the collapse, and that realizing the trend of Tang Shao-yi's negotiations with the South, and the growth of support to the Southern cause, he was most earnestly concerned with making good terms for the Manchus, and that he had little or no desire to be President of the new republic. In the initiation of the monarchy movement, Sir John believes that Yuan Shih-kai himself had little part, and that he was the victim of the machinations of his trusted agents. While the monarchy was under consideration, Sir John's advice was frankly sought, usually by the men who were the most insistent advocates of it, and in his interviews with these agents, Sir John consistently advised against Yuan's assumption of Imperial dignities. He believes that Yuan Shih-kai's death was almost deliberate, that he died because he felt that he

had made a mistake, and that he was an obstacle to China's further progress. He describes Yuan Shih-kai as a man of supreme administrative ability, and of a profound understanding of China's fundamental needs. He does not believe that he was an intellectual giant, but he persists in his conviction that he was more far-sighted and more patriotic than any Chinese official whom he has ever known.

The Great Anti-Opium Campaign

If there is any one material achievement for which every Chinese should remember Sir John Jordan gratefully, it should be the abolition of the opium trade. Moral and spiritual services are intangible; it is soon forgotten, as one set of officials succeeds another, that a man by precept or advice may have rendered valuable service, but when an end was put to the opium traffic it was as visible and as marked an accomplishment as a victory in open battle and in this particular feat good generalship was as conspicuous as it ever is in war. For several generations Great Britain had doggedly maintained the right of her traders to import opium into China. This stand had been taken when the ships and merchants of all nations participated in the trade and when all commerce in China had to be protected by gunboats. But in latter years the bulk of the opium imported was grown in India, British subjects had almost a monopoly upon the import and of course Great Britain bore the whole burden of the responsibility for making the drug available to the Chinese people. The interested merchants argued that opium did the Chinese little or no harm in the first place and that the growth of native opium was unchecked throughout the provinces so that a restriction of the import would simply be a restriction upon free competition and would prove of no benefit to China.

Sir John Jordan had his own ideas about the effects of opium upon the Chinese people. He had lived in too close touch with the Chinese to be deceived by any specious arguments about the harmlessness of the drug to Orientals, and for years he worked to reach an understanding with the Chinese by which they would agree to suppress native planting as foreign imports were decreased. In 1911, after a long diplomatic battle with the Indian Government, which at first opposed his plans stubbornly, Sir John had the satisfaction of signing an agreement with the Chinese Government which provided for a schedule of reductions in imports and in native opium growing which was to have extended over a period of ten years. The Chinese were given an opportunity, however, to hasten the suppression as they saw fit, and in the ensuing years Sir John provided for inspections of the provinces by British consular officials and did everything in his power to keep the Chinese to their part of the bargain. That they did stick to their bargain and that they did remarkably well is a tremendous satisfaction to the retiring Minister as he looks back over his career. Opium is not gone altogether from China, but the British trade is at an end, and while native opium is grown in remote districts and under the protection of corrupt officials, still Sir John confidently believes that it can never revive as a legitimate trade and that as the government becomes more centralized and as communications improve, the Chinese, knowing what they were able to accomplish in the past, will easily suppress all growth and traffic in the interior.

At the close of ten years' service as Minister, satisfied with having dealt the opium trade a death blow and with the reorganization of the Salt Gabelle which was achieved through the Consortium loan to Yuan Shih-kai, Sir John Jordan returned to England, ostensibly to retire. He carried with him a high regard for the men who had assisted him

in the negotiations for the reforms in the Salt Administration, and was particularly grateful to the American Minister, the late Mr. Calhoun, who after giving him the strongest possible support at a time when the Germans were eager to assume the direction of the Gabelle, was prohibited by his Government from taking any further interest in the loan, from which, as everyone knows, American support was finally withheld. Sir John speaks fervently of Mr. Calhoun as one of the best diplomatic representatives which any country has ever sent to China.

Sir John's Policy Towards China

Sir John returned to London in the third year of the war and was there through the most critical period. He had not been at home long, however, when the Foreign Office discovered that he was still needed in China, and after a time he was asked to return. The announcement in a number of Far Eastern papers that he was finally retired and that there was no thought whatever of sending him back to the Orient, was not at all to his taste, and, according to his friends, had not a little to do with bringing him back.

The war which he saw at close range made a profound impression upon him. It did not in any sense embitter him or make him intolerant, but, as a naturally thoughtful man, believing in honest and just diplomacy, it made him more thoughtful and gave him greater courage in advancing his opinions upon what just diplomacy in the East should be. The deference shown to his judgment at home and the prestige which his reappointment gave him very probably had their effect upon his mind and warranted him in greater independence of action and in a more outspoken statement of his opinions upon events in the East in his despatches to the Foreign Office. A rest from the immediate cares of his office and a perspective upon Chinese affairs from the homeland also gave him an opportunity to evolve clearly in his own mind a policy which made China's good coincide with the best interests of the rest of the world. He had no sooner returned to China than both Chinese officials and the foreigners who came in touch with him realized that they had to do with a much bigger man and with a much more liberal, optimistic man than they had known before, but with one no less intolerant of official sins and foibles. He made it a point to see much more of the Chinese personally, called them into conferences and debated with them, invited them to his house—the leaders of all parties and all factions—and preached to them of the course of development which he was convinced China ought to take and of the means that might be employed to advance her interests. He preached railways and other communications, he preached education, he deplored the habit of living upon easily acquired foreign loans into which the Government had fallen, and he bitterly condemned the militarists and their tactics in his country.

He was one of the staunchest supporters of the theory that no money and no arms should come into China until order and a reasonably good government had been evolved, which public opinion should control; and when the embargo was put upon arms and money last March, it was largely at his suggestion and through his diplomacy. He has had many disappointments in his long career, but none of them has ever driven him to despair. After China's failure to make good her claims at the peace conference he was despondent, but his belief in China and his conviction that no set-back could do her incurable harm, revived; and after a summer of gloom, when he was very loth to discuss international politics at all and had even less to say to the Chinese than to foreigners, his hopes revived. He saw much of the Chin-

ese about Christmas time, again bringing them to his house to argue over the whole field of politics and diplomacy with them, and in the convention, of the British Chambers of Commerce at Shanghai he took the liveliest possible interest and spoke vigorously of his policy and his hopes. He confesses that he is often disappointed in the Chinese, that the follies of the Government depress him, but he always comes back to the firm assertion that, "after all, the Chinese are a wonderful people and a good people."

Sir John Jordan is personally a man, who without the slightest assumption of official dignity or pose, has natural dignity. He is an approachable man, mild mannered, patient and deliberate in the discussion of any subject, and not dogmatic, though a firm champion of his own ideas. His sense of humour prompts him to much table talk and the telling of many anecdotes, in which, after making light of some big personage whom he has at some time seen in a ludicrous situation, he always sobers a little and in wistful retrospect recalls some good quality or some well-meaning act of the person with whose foibles he has just been regaling his friends.

He will tell how the old reprobates of the Tsungli Yamên used to receive their foreign visitors, who were in those days ever unwelcome, in open pavilions on windy winter days and while they were snugly wrapped in their furs and rugs, take pleasure in seeing the foreign diplomats shrivel up, grow restless under the excessive cold and then beat their retreat. And when he has finished painting them in such a light, he will remind his hearers that this or that one was really a true patriot and, poor fellow, did his best for China, and that some other came to an undeserved end. He will tell how amusing it was, about the time of the Chungking Convention, to find Sir John Walsham sitting in his chair on the road to the Western hills, left to his own devices by the coolies to whom he could not talk and who had dumped him down because they were tired; and then he will soberly tell you something very fine about Sir John Walsham. His sense of humour is never of the acid variety and mild as it is he always tempers it with some sober and kindly comment.

It is difficult to write of Sir John Jordan being missed and his going regretted without falling into an obituary tone. No one who knows him or the esteem in which he is held by his Government believes that his influence is going to be forever removed from Far Eastern Affairs. No one wishes to imply by excessive lamentations over his departure, that after more than forty years of service he does not deserve rest and relaxation from the routine duties of his office, or that by leaving China at the height of his usefulness he is leaving either the Chinese or his colleagues in the lurch; but, however, ready we may be to grant that he will be of better service at home, and that with his family, he may be happier there, we are still fully entitled to register our own personal regrets for the imminent loss of direct and personal contact with him. Those who have always looked to him to assume competent leadership in every big work that was to be done in Peking, those who have gone to him for moral support in difficult times, those who have taken their theories and their schemes of reform to him to have them tested in the alembic of his superior experience and his perfect understanding of Chinese affairs, will all miss him, perhaps more than many of them anticipate. Those who have chatted and dined with him, and particularly those who have walked and talked with him, whether in his brisk routine exercises on the wall or in his strolls in the country, will mourn his loss; for while the world is small and communications are remarkably good from one side of the globe to

the other, those who appreciate the value of a real personality know how true it is that language was invented to disguise ideas and to conceal sentiment and how unsatisfactory it is going to a man for guidance or moral support through the medium of the mails when they are a month or more in transit.

As a British diplomat in China Sir John Jordan has been particularly valuable to his country because he had personality and character, and for this reason he will be hard to replace. A marked personality is of more value in China than in any country in the world. The right man can settle in a few minutes' quiet discussion with a Chinese official what a whole commission of technical experts of commonplace stamp cannot do. A single diplomatic agent who has the happy faculty of making a deep impression upon the minds of the Chinese whom he meets is worth more to a Government than the most elaborate consular system. Sir John Jordan has always had this faculty and for this reason his going is a particularly heavy loss to British interests in China. He was a man who could get things done because he was one whom the Chinese could not dismiss from their minds and ignore. For this reason as much as any other, hundreds of Chinese are going to regret his home-going deeply and sincerely, and for the same reason, many others, whose careers and motives will not bear inspection, are going to rejoice.

There is bound to be a time, however, when all of China will see Sir John Jordan's career in perspective and will appreciate his services. They will not only realize that he made possible the reorganization of their Salt Administration, that he did away with opium, that he gave his moral support to the revolution and fostered democracy, that he opposed Yuan Shih-kai's flight at the throne though he admired him more than any Chinese whom he had ever met, that he gave every encouragement in his power to the extension of railways, education and to the liberal expression of public opinion in China, that he dropped from his consideration the matter of Spheres of Influence and upheld with all his strength the independence and integrity of China—they will not only realize and appreciate all this, but they will also understand that he has been a powerful factor in reshaping foreign policy in China and in making it apparent to the Occident that a united China with a democratic government, which was in turn based upon the expressed will of the Chinese people, in whom he so sincerely believes, is essential to the advancement of all Occidental interests on this side of the globe and to the peace and well being of the whole world. This has always been his creed and his policy, but in the twilight of his career, enjoying the confidence of his own Government and the prestige of a white haired old gentleman in China, he has been able to devote nearly all of his time and energies to the shaping of British policy in conformity with these ideas, and in so doing has done China a service which will never be fully appreciated until the strong central Chinese government of his dreams has actually come into being in response to the demand of an enlightened Chinese people.

Mr. Frederick Moore has been selected to manage the publicity campaign for General Wood in connection with the U.S. Presidential election. This selection comes as gratifying news to his old friends in the Far East where he served for several years as correspondent of the "Associated Press." During the war he was in France as correspondent of the "New York Tribune," and won great credit for his exceptionally able work at the Peace Conference.

China's Engineering Feats; Her Rivers and Roads

ACCORDING to ancient custom most ideas in China come in fives. One might substitute "funf" for "drei" in the German saying and apply it to Cathay. Life consists in the five relationships: between sovereign and subject, husband and wife, parent and child, brother and brother, friend and friend.

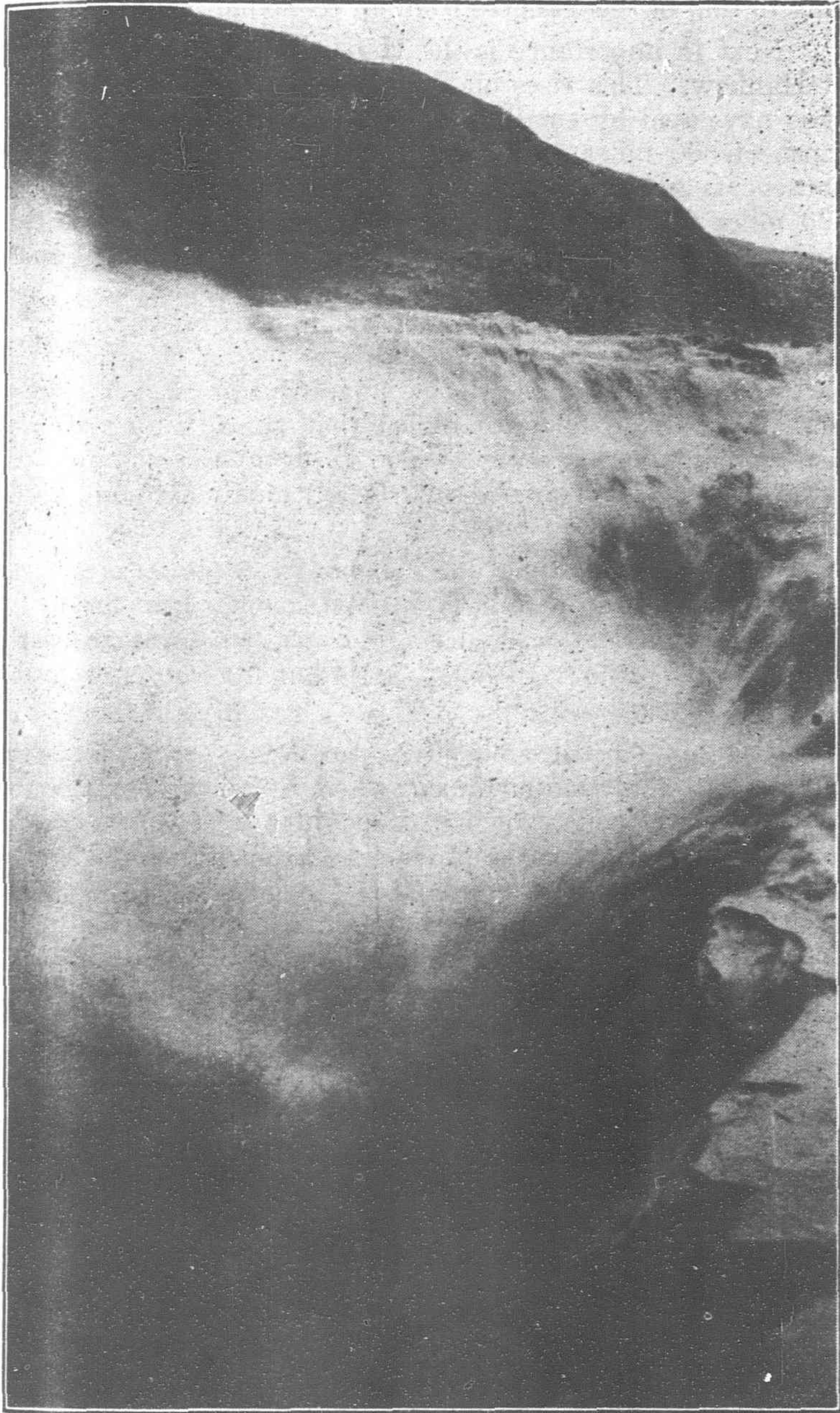


Photo: Dr. C. K. Edmunds.

China's Niagara

The Yellow River tumbling into a narrow gorge and forming the Lungwang (Dragon King) Falls.

There are five classes of society, five orders of nobility, five rites, five degrees of mourning, the five-clawed dragon (which doesn't exist) and the so-called five-colored porcelain (which isn't five-colored!). There are the five elements: metal, wood, water, fire, earth; though the all surrounding air is omitted! There are the five senses, the five virtues, the five planets, five colors, five musical notes and the five classics, the learning of which by a cast-iron method has in several hundred years wasted enough energy for ten millenniums of true education. There are the five races, the five cereals, the five seasons and of special value to the traveller the five points

of the compass: North, East, South, West and Centre; indicating that it is just as important to know where you are as it is to get your direction!

Thus writes Dr. Charles Keyser Edmunds, PH.D., in an extremely interesting paper, published in the "Journal of the North-China Branch of the Royal Asiatic Society, on his journeys through China as Observer-in-charge of the Magnetic Survey of China, Carnegie Institution of Washington, 1906-1917. Dr. Edmunds entitles his paper "Thirty Thousand Miles in China," and under the risk of being considered too artificial presents his subject according to the ancient rule of five as mentioned above.

From his paper we take the liberty of reproducing a few outstanding facts of general interest.

He gives as the five sacred mountains: Taishan, in Shantung, Hengshan in Hunan, Wutaishan in Shansi, Omeishan in Szechuan, and Hwashan in Shensi. All of these he has visited. Omei is the highest (10,000-ft.), and affords the greatest variety of scenery, Hwashan (6000) presents the most interesting ascent because of the steepness of the artificial way prepared for devotees, while Taishan (5000) has the most valuable historical connection with China's Chief Sage, Confucius, who ascended this mount about 500 B.C. Each bears numerous temples and each is visited annually by thousands of pilgrims from near and far.

China's Five Great Engineering Feats

In his travels the five great engineering feats of the Chinese were inspected by Dr. Edmunds, and these he gives as follow:—

1.—The Great Wall, begun as early as 240 B.C. and added to as late as A.D. 1547, to keep out invaders who nevertheless have made an effective entry, has been followed for long distances in widely separated sections of its tortuous course of 1,250 miles.

2.—The Grand Canal, the oldest and longest artificial waterway in the world, built in three sections in three different periods (from 550 B.C. to A.D. 1283) and finally completed for the inland transport of grain from Hangchow in the South to the Capital in the North, has been traversed practically from end to end of its 1,000 miles, in spite of the dilapidated condition of its northern section.

3.—The Hangchow Bore Wall, built about A.D. 915 and still protecting millions from a twice-daily flood from the sea, has, though less known impressed me as worthy of a greater share of fame than the Grand Canal or the Great Wall, because of the dynamic difficulties to be overcome in the construction of 180 miles of a wall which so effectively shuts out one of the most gigantic and powerful tidal bores in the world.

4.—The exceedingly clever and extensive irrigation system of Kwanhsien inaugurated probably about 200 B.C. and still responsible for so much of the prosperity of Szechuan has been investigated from the headwaters of the Min that feeds it to the by-canals of the Chengtu plain where it supports millions on what would otherwise be barren land.

5.—The brine wells of Tzeliutsing also in Szechuan, sunk by hand to a depth of 3,000 feet and operated by crude machinery with water-buffalo as the motive power have been seen and marvelled at. Dating, as some of the wells do, from as early as A.D. 250 this region still supplies an enormous quantity of that most essential commodity, which in China is the Government's one monopoly, salt, which under the recent administration of Sir Richard Dane has added so greatly to the nation's revenue.

Note, please, three significant characteristics of these engineering feats: Each is of fairly ancient origin; each is of great magnitude; and each is a work of utility, all but one (*i.e.* the Great Wall) being of important use to-day. Contrast these with the useless monuments which the ancient Egyptians

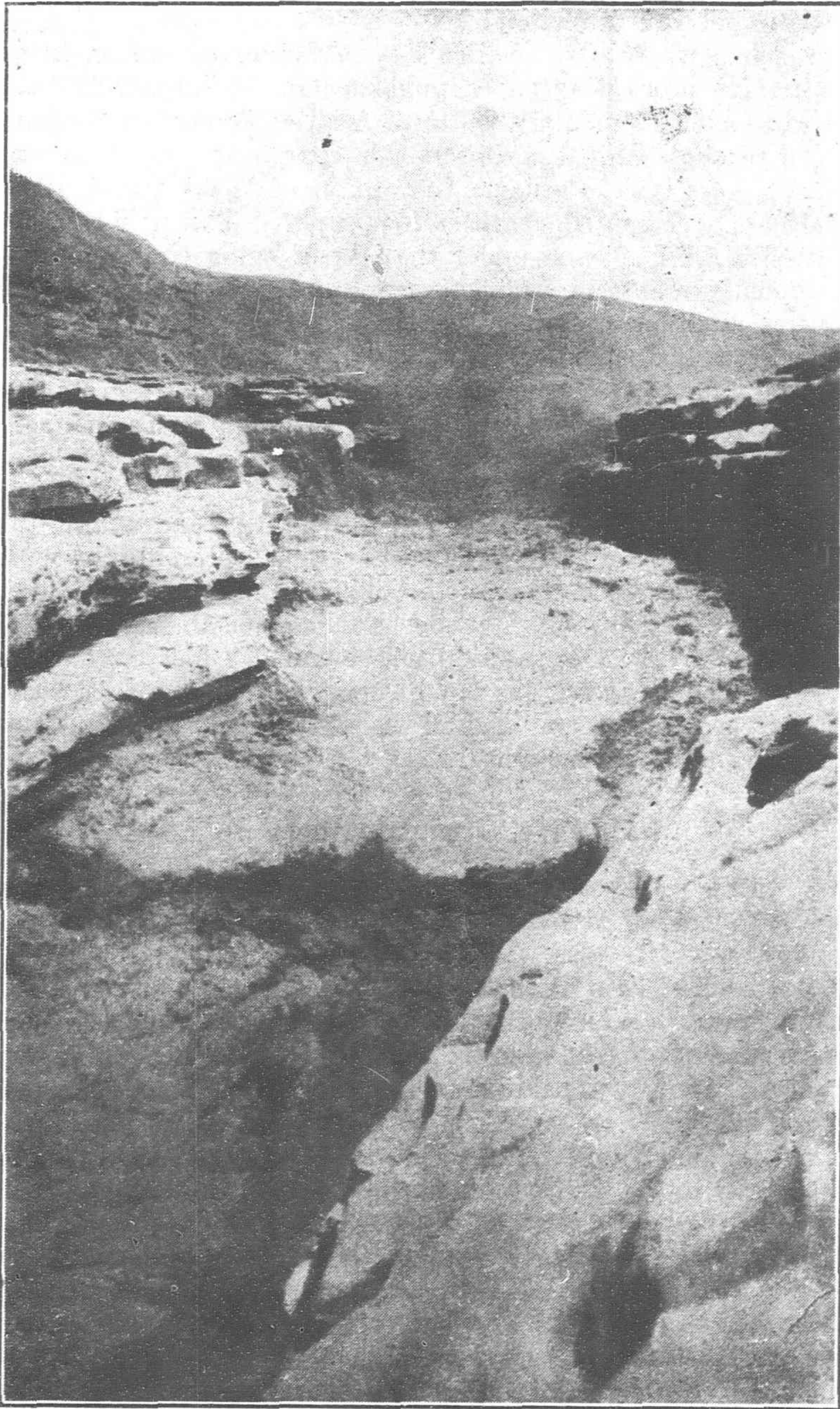


Photo: Dr. C. K. Edmunds.

The Gorge at the Lungwang Falls

It is estimated that the water is 200 feet deep in this narrow gorge which carries the whole volume of the Yellow River.

have left as marks of their former prowess and you will readily admit the superiority of the Chinese. Remember too that the Chinese are the only great nation to-day that has survived from any remote past.

The Five Rivers of First Importance

Waterways both natural and artificial are tremendously used wherever available and China for the most part is well supplied. Of rivers one thinks first of the mighty Yangtze, a veritable aorta of trade that traverses the entire width of China proper from Tibet to the sea, and is navigable for ocean-going vessels for 600 miles, by smaller steamers for 400 more and by still smaller steamers for another stretch of 400 miles, while junks of fair size can proceed still another 100 miles or so. The navigation beyond the first 1,000 miles is, however, quite precarious.

We think secondly of the Si Kiang or West River and its tributaries in South China. Rising in Yunnan this stream is a great river by the time it reaches the Kwangsi-Kwangtung border. Marked in its upper and middle courses by fine gorges and in its lower course by a magnificently fertile delta, it is navigable for coasting vessels as far as Canton and for smaller steamers as far as Wuchow while launches ascend the higher courses of its tributaries as well as of the main stream for another 150 miles or so and smaller craft go clear to the Western boundary of Kwangsi and to the Northern boundary of Kwangtung. This river system is second in importance only to that of the Yangtze from an economic point of view.

Next in importance is the Han, which joins the Yangtze at Hankow. This rises on the Shensi-Szechuan boundary. It is navigated by small steamers as far as Siangyang a distance of 300 miles, and during summer by cargo boats and houseboats and by smaller craft in all seasons up to Hanchung 600 miles further. In its course across Shensi it traverses abrupt gorges and its bed is rock-stream. It becomes readily navigable only at Laohokow where it widens rapidly to a width of 2,600 feet. Further down it again narrows and at its mouth is but 200 feet wide in low-water season. In this lower part of its course, it has the peculiar feature enjoyed also by the Yellow River, of a bed higher than the adjoining plain so that embankments are necessary. During the summer the water-level of the Han rises 20 feet, sometimes more, above the adjacent plain.

Of the Yellow River one can hardly speak as of a highway; for the most part it is useless except as a means of drainage and irrigation, and is one of the most unmanageable rivers in the world. In length it is but little inferior to the Yangtze, being 2,500 miles.

Rising in Tibet it is already a stream 200 yards wide when it enters north-western Kansu where its bed is 8,000 feet above sea level from which it drops 5,000 feet in its north-easterly passage across the province. From Kansu the Yellow River runs north to the high land of Mongolia where its course is changed to almost due east. At Hokow the river turns sharply to the south and continues in that direction for about 480 miles until it is joined near Tungkwan by the River Wei and turns again sharply to the east.

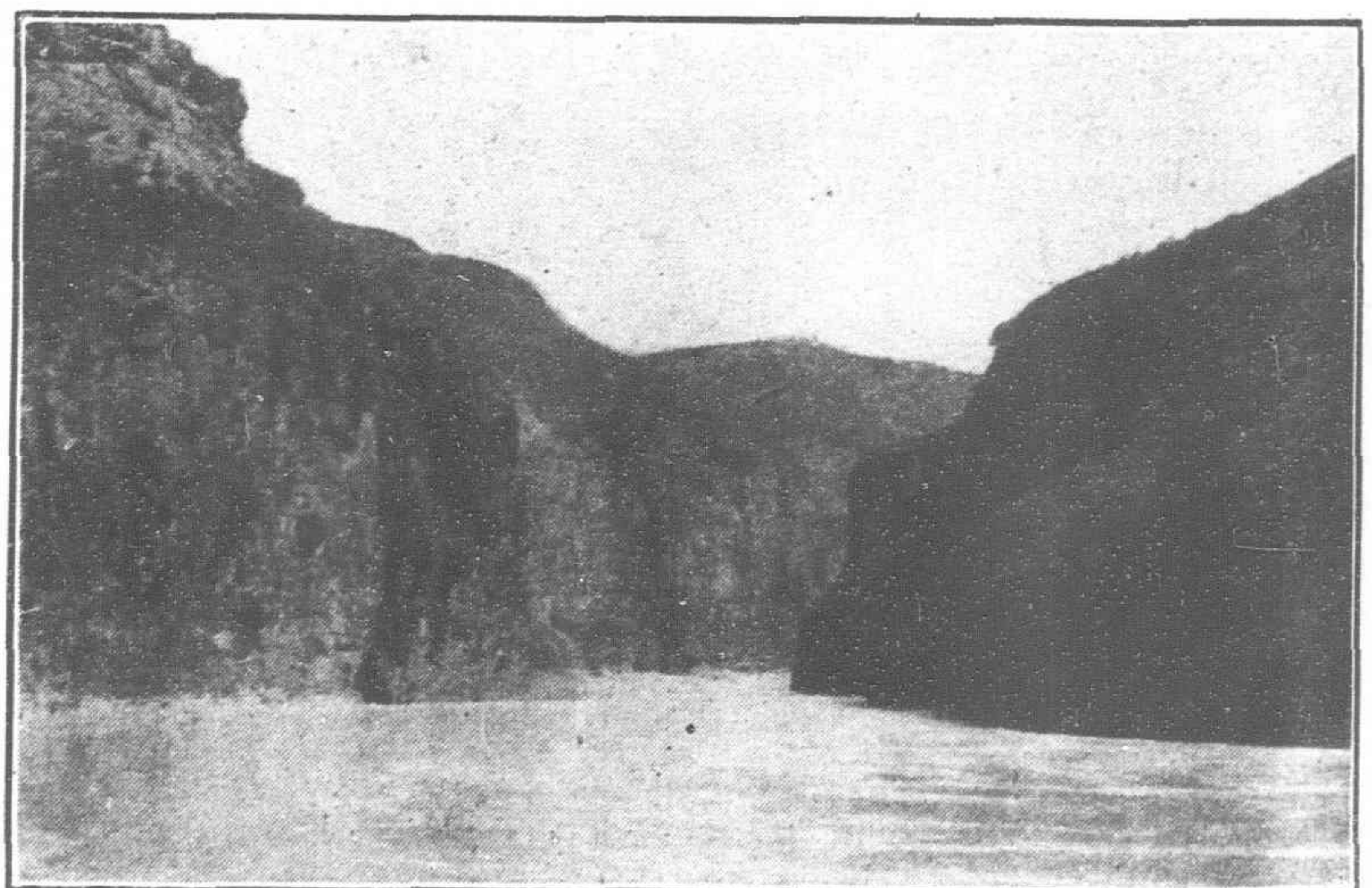


Photo: Dr. C. K. Edmunds.

The Yumenkow Gorge

The Yellow River has its gorges as well as the Yangtze. This one is ten miles long.

The Wei rises in Eastern Kansu and flows south-eastly to Shensi, and crosses that province in a nearly straight line from west to east. Its well-watered valley was the birth-place of Chinese civilization and is full of relics of the past. It has also the reputation of being the most fertile land in China.

About nine miles from the river on its right bank, and half-way across the province, stands the great city of Sian.

The Yellow River

At the Tungkwan bend the bed of the Yellow River is still 1,300 feet above sea-level. At the Sanmen rapids, which no boat can ascend, the river again enters the hills, to leave them finally at Mengching, a place above Menghsien, in Honan, about 200 miles below Tungkwan. Here the great river, running from four to six miles an hour, finds itself on the level plain, with still 400 miles to go before it can reach the sea.

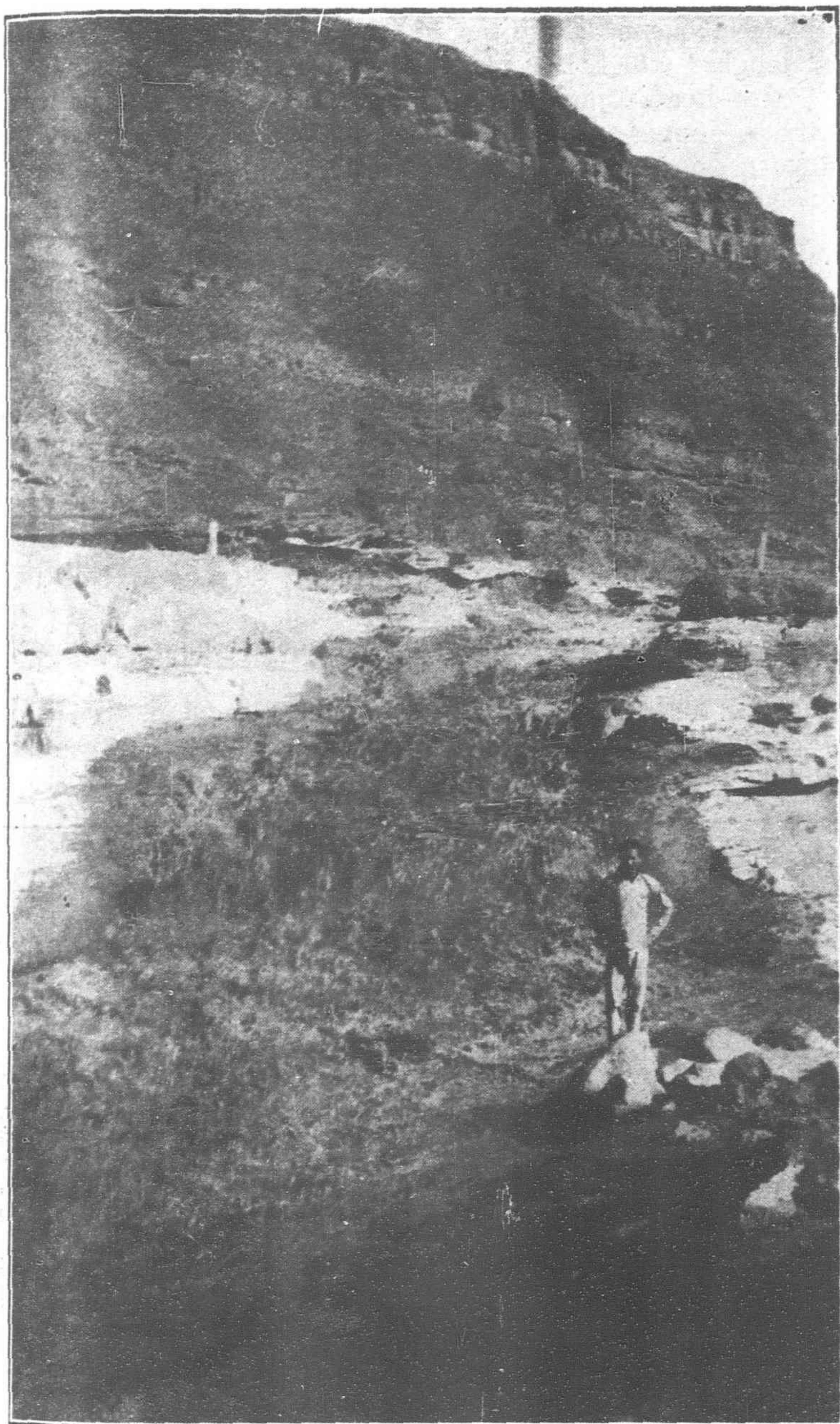


Photo: Dr. C. K. Edmunds

A small fall down which boats are lowered. The two posts at the top of the cascade are used with hawsers for the lowering of the boats.

This is where it is most to be dreaded, because the mud and sand carried down by its stream have actually raised the bed of the river until it is several yards above the level of the surrounding country. Consequently there are few important towns on its banks. At its crossing with the Grand Canal, its bed is 16 feet above the level of the Canal.

During the whole known historical period, this river has frequently changed its course for the last 350 miles. These changes have swept over a fan-shaped area of 60 degrees in

one of the most densely populated and highly cultivated regions in all China, and have, consequently caused great loss of life both directly by flood, and indirectly by consequent famine through destruction of standing crops as well as of stored food supplies. This has earned for it the title of "China's Great Sorrow."

To hinder its overflowing, embankments hem it in, some nearer, others farther, ranging one behind another at variable distances. In this manner, if one gives way, another prevents the inundation. In their present state, these works are still very inefficient, the dykes being weak and constructed with materials that offer insufficient resistance.

China's Niagara

Nowhere throughout its length is the Yellow River navigable without difficulty. Its highest reaches are rock strewn and only rafts can be used with any degree of safety. In the long southward reach between Shansi and Shensi navigation in crude boats can be accomplished downstream but only with considerable difficulty owing to the many rapids, and at one point navigation is completely interrupted by the young Niagara of Lungwang or Dragon King, 250 miles below Paote. Above the falls the river is about 200 yards wide, and the channel is broken up by rocky ledges. The bulk of the water, a tumbling mass of a coffee colour, flecked with foam, plunges into a narrow crack in its bed near the Shensi shore. The depth of the fall is about 60 feet, but the bottom is a seething cauldron which cannot properly be seen owing to the clouds of spray that rise from it. The remainder of the water falls into the same fissure at right angles to the main fall in a series of cascades 500 yards long. There is a spot some distance below the fall where, standing on the roadway by the river-bank and looking upstream, one sees a cloud of blue mist rising from the middle of the water without apparent cause, while at one's feet the whole volume of a great river rushes for three miles down a narrow canyon in places not more than 15 yards, and nowhere more than 40 yards wide.

A day's journey below the falls is the famous Lungmen gorge, ending in the straits of Yumenkow. This gorge is about 10 miles long. The river is a deep, still stream 150 yards wide, and races between precipices of reddish-grey sandstone 800 feet high. Above the precipices the cone-shaped tops of the hills covered with green scrub rise for another 800 feet. At Yumenkow the banks contract to 50 yards, and upon each side of the strait there is a fine temple. Coming down-stream, when one's boat rushes through this strait there is a striking

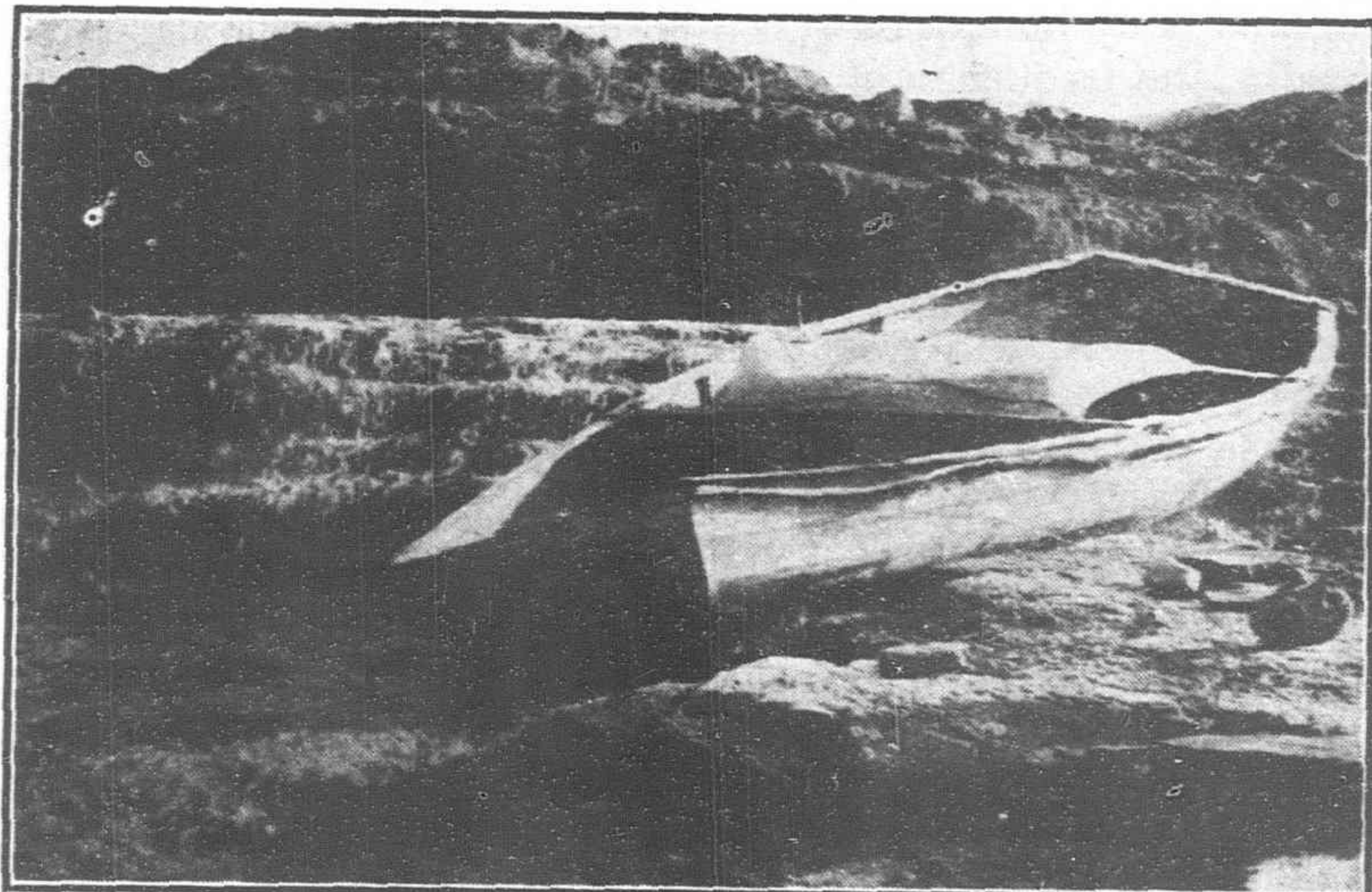


Photo: Dr. C. K. Edmunds

A Boat on its way Down the Falls

These boats are made on the Upper Yellow River and are floated down to Honan Province, laden with products, and are there broken up and sold as lumber. The planking is about 1½-in. thick.

transformation, the river suddenly leaving the hills and spreading out over a sandy flat to a breadth of three miles.

At Yumenkow coal brought by mulepack from the mines of Southern Shansi is loaded on so-called "Honan" barges, curiously bedecked with bells, which carry their cargoes to Tungkwan and also up the Wei.

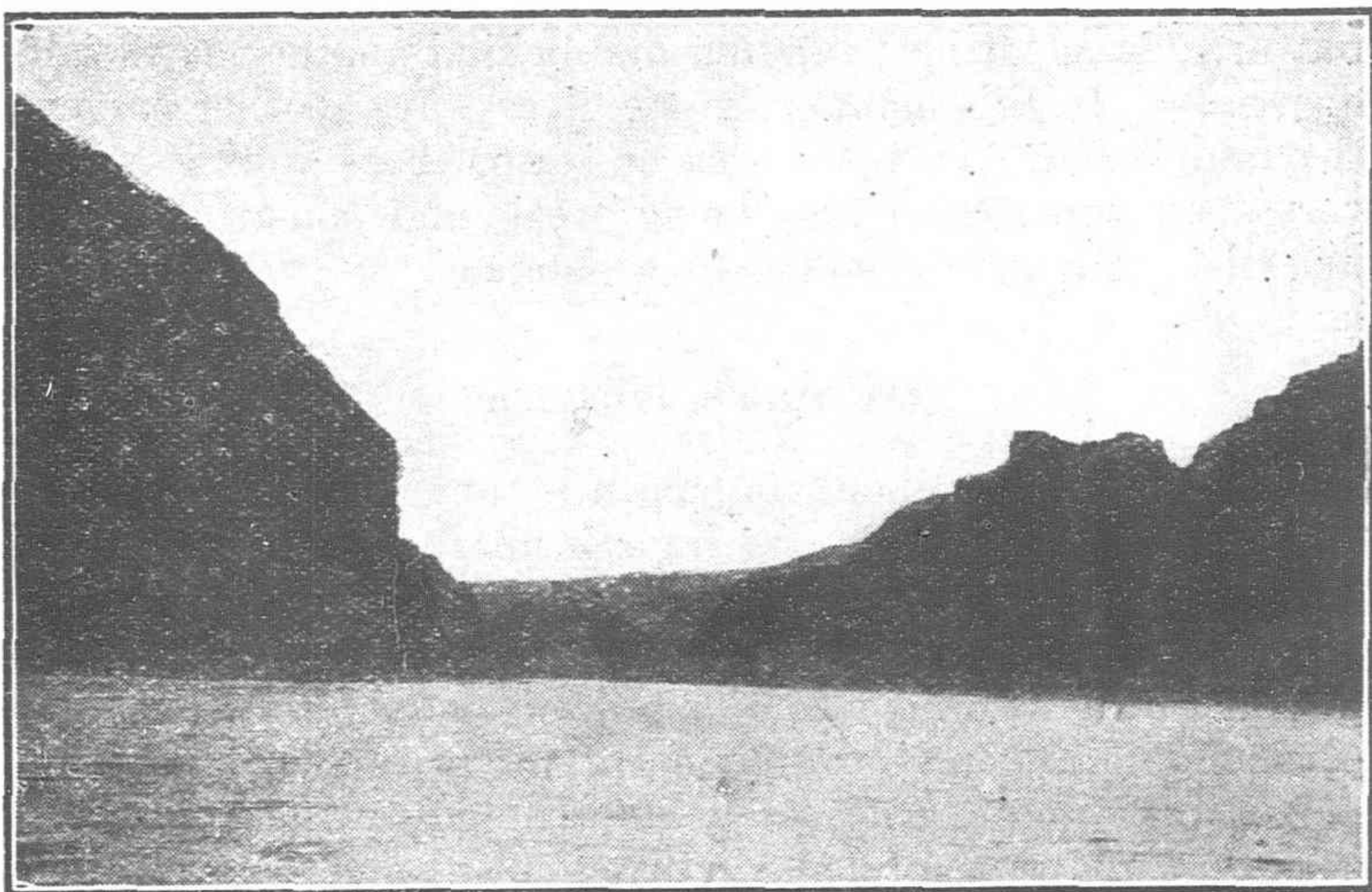


Photo: Dr. C. K. Edmunds.

A Yellow River Gorge

This view is taken between Hokow and Paotao, the formation being red sandstone.

In its lower reaches the Yellow River is really navigable only in two stretches: to the north of Honan and in the last 25 miles of its course. But even in these parts shoals prevent boats except of very light draft from passing. The control of the Yellow River is to-day one of the most pressing of China's physical problems. Experience has shown that the dyking of such rivers is insufficient and almost futile.

Five Kinds of Highways

There are five principal kinds of highways in China, just as elsewhere in the world; though up till now the relative importance of certain ones is much greater in China than in most other countries: Waterways, footpaths, pack trails, cart roads and railways. Roughly speaking China is a country of no good roads. The chief reasons are not far to seek. In the great delta regions of the West and Yangtze Rivers, in the best sections of the great plain and in Szechuan, land is so valuable for cultivation that as little as possible is spared for highways. Then, too, these are the very regions where the population is so dense and labor so cheap that most transport on land is by human bearers who need only a footpath. And, finally, the frequency of waterways on which the cheapness of transport in boats of all sizes controls the situation for both short and long hauls even up stream.

In the south the highways are mere "single-file" footpaths on the tops of low ridges between cultivated fields. In some sections these are paved with stone slabs. The only native carts I have seen south of the Yangtze are the long slung ox-carts in the southern part of the Island of Hainan and the high hung ox-carts of mid Hunan, and of these the chief part is their "squeak." In the Yangtze basin, Central China, and especially Shantung, wheelbarrows are used both for passengers and for goods; and some of these affairs are veritable "ships o' the land." In some sections of the Chengtu plain in Szechuan smaller one-passenger low slung barrows were encountered and used, though the sedan-chair is the "palace car" here as in most parts of China. In these regions the roads are generally wider than in the south, but hardly any better.

In the north generally, both east and west, carts are much used. Village and city streets as well as roads are hence of a better width than in the south. Throughout mountainous

regions pack animals, usually mules or donkeys, are used, though in some regions human carriers alone can negotiate their way. While across the desert regions camels are the monarchs of the road.

In some regions, as in the loess country, the roads have become deep ruts worn below the general level of the land to a depth of 10, 20, 30 and even 70 feet! And these in the dry season are dusty beyond description and in rainy weather are deep in mud of a peculiar stickiness.

Along with the development of railways China needs improved roads everywhere.

Five Sorts of Native Transport

There are, as might be expected, five sorts of native transport; some though few of them could be called transports of delight! which I have used extensively, as follows:

I.—Boats: junks, houseboats, triple-deck passage boats, canoes, slipper boats, footpower boats (2 kinds: rotary and direct), sampans, cargo boats and rafts, engine-driven, rowed, towed, yulowed, sailed and poled. In many provinces.

II.—Carts: closed and open, narrow (3 ft. 6 in.) and wide (6 ft. 8 in.), drawn by one, two or three animals (not counting the driver!) and always springless. In North China especially.

III.—Wheelbarrows: single platform, double-sided, small wheeled, large wheeled, pushed by man, pulled by man or donkey or both, sometimes aided with a sail. In Central and North China. Avoided by me as much as possible.

IV.—Bipeds: men and women, with loads carried on the back, across the shoulder at the two ends of a balanced rod, or between two carriers using one pole or two parallel poles. Sedan-chair, two, three or four bearers; mountain chair, two, three or four. In every province.

V.—Quadrupeds: Horses, mules, donkeys, oxen, cows, camels and yak; with or without pack saddles, but for riding purposes always with a foreign saddle. Used for riding, pack or draft or for carrying a chair or litter slung between two animals. In Northern and Western China.

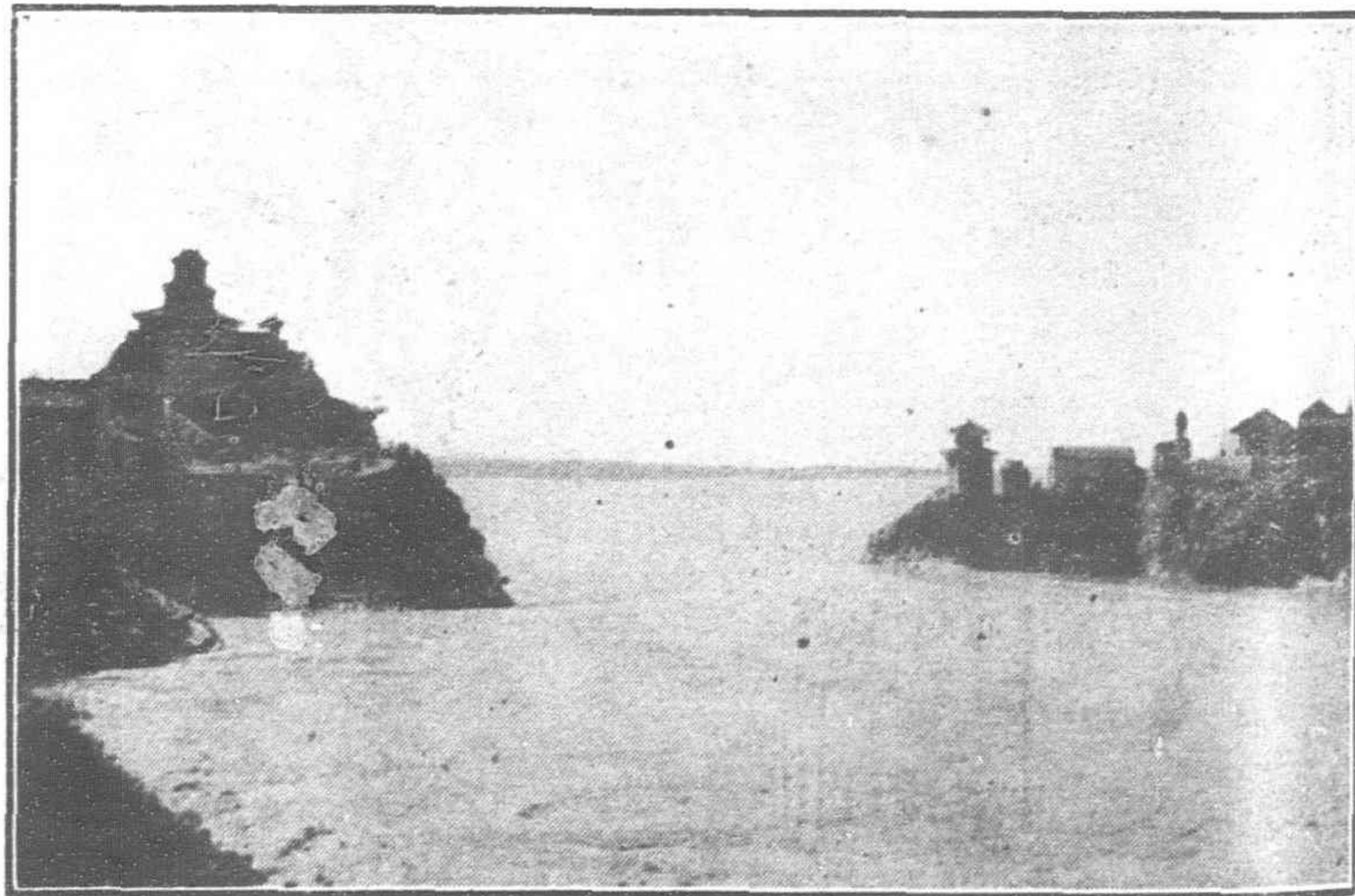


Photo: Dr. C. K. Edmunds.

Mouth of the Yumenkow Gorge

Outside the mouth of this narrow gorge the Yellow River immediately assumes a width of some five miles.

During the travel by cart, mulepack or carriers I have for the most part gone myself on foot, partly from preference and partly to insure a more gentle transport of the chronometers in my belt or hand.

One of the most remarkable developments in the way of more rapid transportation in China has been the installation of so-called "launch trains," especially in the middle and lower sections of the Grand Canal and throughout the Canton delta. For instance, in the custom house at Canton hundreds of steam launches are registered as towing between it and

neighboring cities and villages, and anywhere distant from 10 to 100 miles. These launch-trains are exceedingly well patronized both for passengers and for freight. Launch building ship-yards have been rapidly developed in Shanghai, Canton and elsewhere. But, for the more rapid and adequate development of that class of communication upon which so much depends for the building together of China, we must look to the railways.

The Outlook

Doubtless there will be within a reasonably short period tremendous development of railways in China and they in turn will have a tremendous welding effect upon the country. It is necessary that within her borders there should be developed well equipped technical schools in which the Chinese may be taught the arts and sciences necessary for the construction and maintenance of railways and other works.

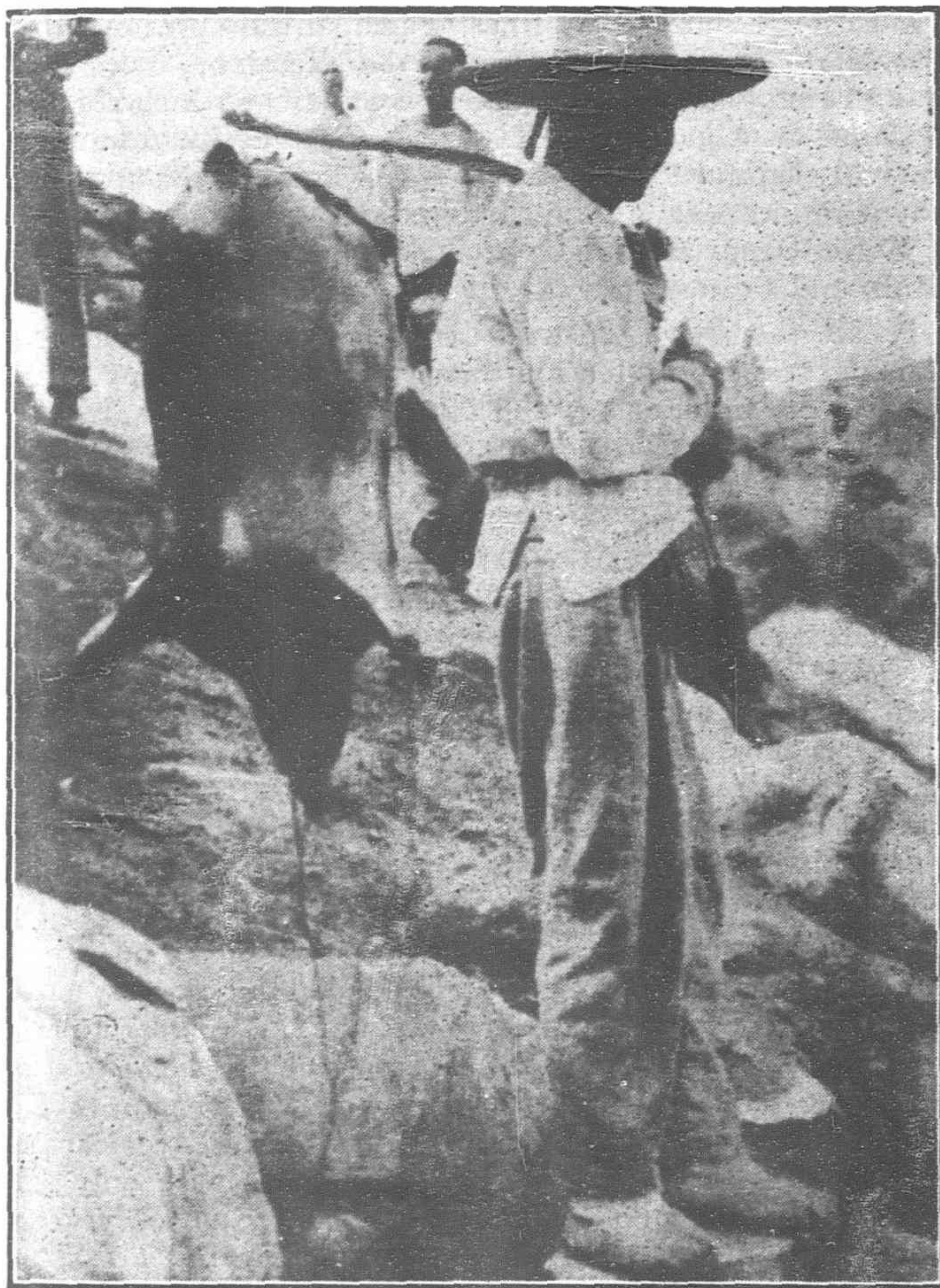


Photo: Dr. C. K. Edmunds.

The Portable Pig-skin Ferry

The natives use inflated pig or sheep skins as ferries on the Upper Yellow River. They put their clothes in a pack on their backs, straddle the skin, and paddle across stream.

There is hardly space to refer in detail to the development of the postal system or telegraph lines in China, except to point out the tremendous success with which the postal system has been developed in that full-fledged post offices with the various departments are in operation all over the country and at lower rates than in Europe and America.

Telegraph lines connect all provincial capitals with Peking and this system is being extended.

The telegraph and the postal system have already, in combination with the development of the public press in China, done a great deal toward unifying the people and may confidently be counted on for a much larger effect in the future and this combined with more adequate railway facilities will surely foster a greater feeling of nationhood and of closeness of relationship between the various provinces.

We have seen something of the various physical problems which China faces. It is significant that the greatest physical feat of the ancient Chinese, the Great Wall, which was executed to shut out foreign intruders, has been broken down in all essential respects, and China is to-day fairly ready for foreign assistance in solving her problems, if it be friendly and not predatory.

The solution of China's physical problems largely depends on education; the education of the people to furnish the background of general enlightenment and the education of the native leaders upon whom must rest the responsibility for carrying out in detail such plans as may be formed for the alleviation of present conditions.

China is destined to become one of the foremost producing nations of the world, a vast market, a huge stabilising, peaceful power if allowed to develop her great wealth in her own way. The problem of China is a world problem, culturally as well as commercially.

The issue in the Orient is sharply drawn: Independent national development for China, and continued progress of the other free Asiatic states; or the subjection of China, and the endangering of all free nationality in Asia.

The loss of free nationality in Asia would probably be a calamity to mankind.

From the higher level of human development, expansion and domination we may well feel that the world is destined to profit greatly by events in the Far East if they result in restoring to humanity the whole Continent of Asia, free to join in making the history of the next hundred years, free to be itself and to supplement, with all of good there is manifest or dormant in it, the strength and goodness of the West.

The shortest road to a partial success in this endeavor to preserve free nationality in Asia is the development of China's material resources, which will not only enrich China and the world, but will help to arouse the people from their age-long sleep; and it may be that military development consequent upon this awakening will serve to maintain the nation's independence.

"American Lloyds" in China

In the days before the war it was painful to American travellers in the Far East to have their flag on a merchant ship regarded as a novelty. It was such a rarity compared with the flags on ships of other nationalities that its appearance used to be regarded with the curiosity that any *rara avis* will produce. But things have changed. The war has spurred America to shipbuilding until she has now a great mercantile marine, with considerable tonnage plying on the Pacific. In view of this great development the American Bureau of Shipping and the United States Shipping Board found it necessary to have a representative stationed in Shanghai, and Captain W. I. Eisler has been appointed to that post also to represent the organizations in the Yangtze River ports, Tientsin, Newchwang, Dairen and other North China ports. Captain Eisler will have charge of all repairs, and accident adjustments, the supervision of the placing of contracts for salvage and repairs, and the despatch of vessels under the jurisdiction of the Shipping Board, and for this work he is eminently qualified by long experience, both in America and China. Particularly will his knowledge of China conditions stand him in good stead. At one time he was in command of the U.S. Naval repair ship on this station and was marine superintendent for the Standard Oil Co., in charge of construction and maintenance of its local fleet. The American Bureau of Shipping (which is American Lloyds) collects and disseminates information upon subjects of marine and commercial interest, etc., and provides an accurate classification and registry of mercantile shipping. It was established in 1862 and finally reorganized in 1916.

American Trade Sacrificed to Ideals

A Protest Against the Consortium Loan Policy

By George Bronson Rea, M.E., Publisher of "The Far Eastern Review"

IN August, 1918, the State Department extended an official invitation to the Governments of Great Britain, France and Japan to join in the organization of a new International Consortium for the financing of China. It was proposed that all administrative, railway and industrial loans carrying the guarantee of the Chinese Government should be pooled, and the promise was held out that the American bankers would carry the British and French participations until such time as they were in a position to take them over. It was assumed that Japan would be able to subscribe to her portion of the loans.

The professed object of the new scheme is to eliminate the spheres of interest in China, and to do this effectively the international pool should embrace the following railway concessions:—

BELGIAN RAILWAYS					Miles
Tatung-Chengtzu Railway	...	...	...	...	1,000
Lung-Tsing-U-Hai, uncompleted sections	...	...	...	...	800
Lung-Tsing-U-Hai, extension to Suchow	...	...	...	...	400
BRITISH RAILWAYS					
Pukow-Sinyang	...	...	...	...	300
Shasi-Singyfu	...	...	...	...	800
Yunnan-Talifu	...	...	...	...	200
Nanking-Changsha	...	...	...	...	1,000
Hangchow-Ningpo (uncompleted)	...	...	...	...	100
Nanchang-Shuichow	...	...	...	...	300
Nanchang-Chaochowfu	...	...	...	...	350
FRENCH RAILWAYS					
Yamchow-Chungking	...	...	...	...	1,000
Other Rights	...	...	...	...	300
INTERNATIONAL RAILWAYS					
Great Britain, France, United States and Japan					
Hukwang Lines—					
Hankow District to Chengtu	...	...	...	...	800
Changsha-Shuichow	...	...	...	...	350
RUSSIAN RAILWAYS					
Harbin-Aigun	...	...	...	...	...
Tsitsihar-Merguen	...	...	...	...	660
AMERICAN RAILWAYS					
Chinchow-Aigun—Protested	...	...	...	...	800
Siems-Carey Contracts	...	...	...	...	1,100
Do, Options	...	...	...	...	1,500
JAPANESE RAILWAYS					
Kaomi-Hsuchow	...	...	...	...	250
Tsinan-Shuntehfu	...	...	...	...	125
Four Lines in Manchuria and Inner Mongolia	...	...	...	...	1,200
Kalgan-Suiyuan extensions	...	...	...	...	250

Grand Total... 13,585

Deducting the Chinchow-Aigun contract this leaves a total of 12,785 miles of new railways which should be pooled under the Consortium, and for which the Chinese Government has signed loan agreements or is compromised to do so. In May last, the independent French group, headed by the Banque Industrielle de Chine, refused to include the Yamchow-Chungking railway contract and its other valuable concessions for the construction of the Pukow Harbor Works, the Yangtze River Bridge and Peking Public Utilities, now valued at \$225,000,000. The Russian lines will be excluded. Mongolia is reserved against railway development, and Great Britain has definitely closed Tibet. The Pritchard-Morgan concession with its monopoly of mining rights to the entire province of Szechuan will not be included. As the result of the refusal of others to pool their concessions and to preserve her strategical position against the come-back of Russia, Japan, in September declined to pool her four railways in Inner Mongolia and Manchuria. The State Department has refused to admit the right of Japan to exclude these concessions and has

requested the British Government to use its influence to induce Japan to recede from her position. It is to be assumed that equal pressure is being brought to bear on the other Powers whose bankers are holding out valuable concessions necessary to the proper elimination of the spheres of interest.

At the preliminary meeting of the Groups held in Paris, it was furthermore agreed that all concessions upon which substantial progress had been made, would be excluded from the pool. This eliminates the Lung-Tsing-U-Hai, Hukwang, Hangchow-Ningpo and the Pukow-Sinyang lines. The Consortium will then select from the remainder, those lines, which, in its opinion, will prove profitable. This will eliminate the Russian, Yunnan-Talifu, Tatung-Chengtzu and the Japanese concessions which conflict with the Chinchow-Aigun line. The net result of the Administration plan will therefore be the financing of certain Group concessions without in any way eliminating the spheres of interest. For this, the State Department has promised the governments of Great Britain and France that we will carry their share of these loans.

If all the above railways are pooled, the present costs of materials, transportation and labor will call for loans at the rate of \$80,000 per mile, or a grand total of \$1,000,000,000. In addition, the many industrial and mining concessions will require another \$500,000,000. Administrative loans for the reorganization of the government and currency reform will call for at least \$300,000,000, a grand total of \$1,800,000,000 required to effectively carry into practice the plans of the Administration.

It has been agreed upon by the Groups that uniform standards and specifications shall be designed for the equipment of these pooled railways, and it has been assumed that the American manufacturer is now in a position to compete on an even basis with those of the other nations forming the Consortium. The French manufacturers, however, have reserved to themselves the privilege of furnishing their quota of the materials required in China until such time as they are again on their industrial feet.

Before the war, no nation could compete on an open specification with Belgium in steel, steel products and railway materials. The parting words of King Albert when he sailed from America for Belgium, was, to the effect, that he was returning home to stimulate the output of railway materials in order to supply Europe. Belgium manufacturers have recently underbid Americans on important orders for railway supplies, and this with only about 40 per cent. of their plants in operation. In a few years, when France, now in possession of the German mining areas, regains her industrial stride, she will take Germany's place in the steel markets of the world. In the meantime, the German munition plants are being rapidly converted into locomotive and car works. The Krupp works have turned out their first locomotives and cars, and start the race with a capacity of 300 locomotives annually. The numerous British plants will soon meet the urgent requirements of their own roads and again concentrate on their overseas business.

The decision of the American bankers to throw the Chinese market open to international competition with preference to Chinese materials is rapidly being taken advantage of by the Chinese, operating with European capital. French interests have taken over the Nicolas Tsu plant, the largest Chinese engineering works in Shanghai, with the intention of enlarging them to manufacture railway equipment. British interests controlling the largest coal mines in China have formed a combination with influential Chinese officials connected with the government for the erection of steel works and railway material plants. The important car and locomotive works attached to the Japanese South Manchuria Railway at Dairen, which now manufactures most of the locomotives and cars for the main line and its extensions will be enlarged in order to compete in the open market made possible for the first time by the American policy.

There will be no favoritism under the new international co-operative plan. The American bankers will provide the funds and public tenders will be invited and an international board of engineers will pass upon each bid before awarding the contracts. Every railway material manufacturer in Great Britain, France, Belgium, Japan and China will enter into competition with the American. All pooled agreements (with the exception of the Hukwang) provide for the purchase of materials in the countries supplying the loans, preference being conceded to Chinese products where price and quality are equal. In practice, however, the French, Belgian, German, and in some instances, the British banking groups simply distributed the orders for materials amongst their manufacturers without the formality of inviting public tenders. On one of the British lines (the Tientsin-Pukow), an attempt was made to invite international competition, with the result that every car and locomotive builder in Christendom submitted tenders, precipitating a cut-throat competition that precluded any just awarding of tenders or advantage to the nation furnishing the loan.

The Hukwang agreement provided for equal competition between the manufacturers of Great Britain, France, Germany and the United States, with the result that most undignified situations were frequently created, which not only obstructed the withdrawal of loan funds from the depository banks, but greatly impeded and added to the cost of construction. A loan of \$20,000,000 that should have completed 600 miles of new railway has sufficed to finish 200. This agreement has conclusively proven that although international banking groups may co-operate in complete harmony in issuing a loan, it is exceedingly difficult, if not impossible, to reconcile the conflicting national interests in the supply of materials. It is impossible for any international board of engineers to harmonize on conflicting tenders for materials and arrive at a just awarding of orders. As it was in the Hukwang, so it will be in any other impracticable international agreement which fails to provide against this intense commercial rivalry.

These trade jealousies engendered by the keen struggle for supremacy in China and other backward countries finally resulted in 1912 in the organization of the British Engineers' Association, a grouping of the most powerful manufacturing interests whose slogan was "British Loans for the Advancement of British Manufactures." The system proposed by the State Department and adopted by the American Group, was for many years employed by the French banks, who, because of the great wealth that rolled into their coffers from the thrift of the French people, and the lack of investment initiative on the part of the depositors, finally lost all sense of responsibility to the material interests of the nation. French foreign loans became purely banking transactions, benefitting only the bankers, and with no corresponding advantages to the industries of the country. Especially was this so in China. Out of a total investment of \$330,000,000 of foreign capital in Chinese railways, France advanced \$150,000,000, or nearly half, but the French manufacturer was permitted to furnish materials for only two lines representing a capitalization of \$35,000,000. As a consequence of this selfish indifference on the part of the French banks to the interests of their manufacturers, there are no large French engineering or trading firms operating in China. It may be said that all the advantage went to the French Bank who used the savings of the French people to build up trade for other nations.

The program of the British Engineers' Association was immediately adopted by the Syndicate of French Manufacturers, which passed unanimous resolutions in the early part of 1914, calling upon their Government and Bankers to protect their interests in all future foreign loans. The effect of this new policy was felt in the organization of the International Finance and Construction Company for Chinese railways. This plan provided equal participation for the constructors and manufacturers of the four interested nations, while fully protecting the interests of China. The French manufacturers through their representative, however, advanced the argument, that as the bulk of these international bonds would be sold in the French market, their products should receive more than the stipulated quarter share of the materials. They proposed that the orders for materials should be distributed between the four nations in proportion to the amount of the bonds sold in each market. This would have

given them perhaps two-thirds instead of the one-quarter share provided for. It would seem that even at this time, the French manufacturer is holding to this plan, by demanding his full share of the orders without competition, until such time as he regains his industrial feet. They woke up too late in 1914 to a realization that their interests had been sacrificed by the Foreign Office and the Bankers in making foreign loans for political purposes. It will never happen again in France.

In the British campaign for recognition of their industries in foreign loans, one of the chief complaints against the Government was its support to the loan of £16,000,000 to Japan for the reconstruction of the South Manchuria Railway. This loan, raised in England, was expended in the United States, thus permitting American railway standards to gain a firm foothold in China after years of opposition to keep them out. In both England and France the time arrived when the manufacturers in self-defense, were compelled to demand protection against the unbusinesslike policy of their governments in supporting the bankers to make political loans, that, in the long run, reacted upon their trade supremacy. And so it must be in the United States, if the American manufacturer, of railway and engineering supplies are to reap permanent benefits from the present financial supremacy of the nation.

In addition to this plan of awarding the orders for materials under open competition with preference to Chinese materials, the international board of engineers representing the banking consortium will conduct the surveys, draw up estimates and invite public tenders for the construction of the various sections. American contracting and construction companies who desire to participate must compete with British, French, Belgian, Japanese and Chinese, all of whom have practical experience in China and are familiar with unit costs. This is particularly true of the Chinese and Japanese. If the American contractor desires to participate in this work, his only chance of success is to join forces with the Chinese and Japanese. Even then there is little chance of his succeeding as this work will be controlled by the semi-official Chinese companies leagued with the authorities and managing directors, who will obtain the work as they have in the past through favoritism, politics and graft. Under this system, it is highly improbable that the lines will be well constructed.

Here again the American engineering firm is penalized by his own government without in any way benefitting China. Because of the wasteful methods of constructing railways under engineers-in-chief appointed by the Banks, the Chinese Government decided in 1914, to build their future railways under a fixed percentage or cost-plus-a fixed sum system. It is only necessary to repeat here that the administrative or general charges attached to the construction of loan built railways under engineers-in-chief appointed by the Banks averages 15 per cent. of the costs of construction, or more than would be necessary to cover the profits of a well-equipped construction company. This is due, in part, to the fact that the engineer has to perfect an organization in a few months or a year, generally from all parts of the world. No individual engineer can hope to create such an organization in such a short time and guarantee the close co-operation, loyalty and efficiency that makes for economical construction. Regardless of how good the units may be in such a scrub organization, it will remain unreliable and inefficient until years of experience have welded the units together into a co-ordinated harmonious whole.

To the ignoring of this fundamental principle by the Banks is traceable the waste, extravagance, and consequent high cost of construction on Chinese railways. There was no incentive for economy, as the Chinese had to foot the bills. If the first loan was insufficient to complete the line, a supplementary loan was issued. The only safe guarantee that the Chinese Government and the bondholders will receive an adequate security for their investment, lies in the construction of these railways by a high class experienced engineering organizations whose reputation is a guarantee to the nation issuing the loan that its prestige will be safeguarded. This cannot be assured by any one engineer-in-chief whose temperamental disqualifications may impair the prestige of the lending nation and destroy for many years its opportunities for further profitable work in China. Although these old methods may be more or less disguised under an international board of engineers-in-chief, the evils will be perpetuated.

Notwithstanding all arguments to the contrary, we place it down as an unalterable axiom, that it is impossible for six engineers representing the interests of six manufacturing nations to harmonize on any scheme of this nature, unless provision is made at the outset for the proper distribution of materials and the construction of the lines between the various nations, where they will not come into conflict with each other. Human nature cannot be changed in so short a time. If the plan is put into practice it can only result in discord and discontent, bringing about a repetition of the Hukwang scandals, and the refusal of the Banks to furnish their quota of the loans when called upon.

To succeed in this keen cut-throat international competition, the American manufacturer must familiarize himself with China, her requirements, politics and peculiar ways of doing business. He must exert himself all along the line to obtain a fair share of this profitable business made possible by his surplus capital and the savings of the American people or, he can invest his surplus capital in building up Chinese enterprises that will, in time, compete with him in other markets of the world, a ruinous competition made possible by the unpractical ideas of an altruistic administration.

For sixteen years the FAR EASTERN REVIEW has carried the brunt of the fight for the advancement of American trade interests in the Far East. Single-handed it has fought several important battles against established mercantile customs in China which tended to preclude American manufacturers and constructors from free competition in the market for railway supplies and the upbuilding of public utilities and industries in China. It has secured advantages for American manufacturers some of which they otherwise would not have obtained for many years, if at all.

This is the last fight that the FAR EASTERN REVIEW can make for American engineering interests. This time, it reluctantly is forced to direct its fire against the highly altruistic policy of its own government. If the government program is carried into effect, it sounds the death knell to future American trade in China. There will be nothing left for an American publication to defend.

The issue must be faced now. It must be fought out before the bankers are compromised to a future program by signed agreements with the other Groups. The FAR EASTERN REVIEW can do no more than state the facts and point a solution. There is a solution. An equitable plan can be devised that will assure to American manufacturers and constructors their legitimate benefits from the development of China's railway program, a plan that will be just to all, permitting us to assist our Allies and China.

If we are to assist our Allies and finance China for the advancement of a political policy, let us be sure that the policy will be effective. Let us be just to ourselves as well as others and safeguard within reasonable limits our commercial future, in this, the greatest potential market for American engineering supplies. This may only be accomplished by intelligent TEAMWORK between the Administration Bankers, Engineers and Manufacturers, which, in turn, may now only be brought about by prompt action.

Write to your Congressmen. Senators, the Secretaries of Commerce and State, and, if need be, to the President himself. Let a firm demand go out to Washington from the Manufacturers of the United States that their interests be protected. **DO IT NOW!**

To British and Japanese Manufacturers

We invite attention to the facts disclosed in the above open letter to American Manufacturers. It is not a national argument. It holds good in your case also. The FAR EASTERN REVIEW is in hearty accord with any plan to assist the British and French until such time as they can take over their share of the loans. In fact, the writer, the publisher of the FAR EASTERN REVIEW, originated the idea of such co-operation during the war and submitted a plan to the Secretary of State which was subsequently adapted as the basis of the new international scheme, but modified

to provide for international competition instead of equal participation in the benefits arising from construction and supply of materials.

Past experience tells us that the British manufacturer cannot compete with the Belgian on an even specification, nor will he be able to hold his own when France rebuilds her industries with the advantage of possessing the German mining regions. No nation can compete with industries established in China for this business. Japan will push ahead to secure her full share of this business and the result may be that the material benefits of this idealistic plan will go to Belgium, China and Japan.

Experience also tells those of us who have been in close touch with railway construction in China that open competition means that every car and locomotive manufacturer in Christendom will compete for the orders. It is only necessary to recall the number of tenders submitted for materials on the Tientsin-Pukow line to emphasize this statement. Experience also tells us that it is absolutely impossible to reconcile the conflicting trade interests in an international combination for the construction of Chinese railways. We have only to recall the bitter animosities aroused by the Hukwang arrangement to emphasize this statement.

The American Bankers may assist the British and French in the matter of the loan, but analysis would indicate that this is as far as the co-operation would extend. British manufacturers would receive little benefit from this application of American friendship. All British loans provide for preference to British materials, so in surrendering these agreements to the Consortium the British manufacturer would give up the substance for the shadow. It is possible, however, that the British manufacturer has experienced a change of heart on these matters, and that the campaign of the British Engineers' Association has been abandoned, and they are now willing that British capital be invested in backward countries without any provision for safeguarding their industries. The British manufacturer may believe that his future lies in establishing branch plants in China that will compete with him elsewhere in the world. In other words, the British manufacturer may have learned to become a high-minded altruist after four years listening to new world doctrines. Maybe. There have been so many changes in the past year or so that we would not be surprised to learn that the British manufacturer and British firms in China are heartily in favor of the new Consortium policy.

They may have accepted the opinion of Sir Charles Addis, the head of the British Group, who in the "International Review" for February, said:—

"The policy of foreign industrial loans has been criticised on the ground that under the dominance of British free trade ideas the borrower is left free to purchase his material in the open market, and that, unless a stipulation is made that the proceeds of the loan shall be expended in this country there is danger of the orders going to other countries whose manufacturers would in this way be benefitted at the expense of our own. Experience, however, has shown this fear to be illusory. To demand such a stipulation is to court suspicion. If granted at all, it will be granted unwillingly or hedged about with such qualifications as to make the concession not worth the having. It is one of those cases in which, as the practical man knows, the best way to obtain what you want is not to ask for it. In practice trade follows the loan and orders follow the engineer. Place an engineer from the Clyde at the head of any industrial undertaking and you may safely dispense with any stipulation as to the provenance of material. Invite tenders from the wide world; frame your specifications in such a way as to suit the engineering standards of different countries; it will be of no avail. In the end you will find, no one can quite say how or why, that your railway or your bridge, or whatever the undertaking may be, is become as Scotch as the engineer himself. How all this comes about nobody knows, except perhaps, the engineer, and he won't tell. But broadly the facts are as we have stated it."

When Sir Charles wrote the article (published in full elsewhere in this number of the FAR EASTERN REVIEW), he was advocating international co-operation in loans to China. But at that time, he was not informed as to the ideas of the American Government in the matter of materials. With an international board of engineers designing the specifications and the same board passing upon the tenders, it would seem that the traditional

engineer from the Clyde will find it difficult to impose Scotch ideas upon his French, American, Belgian, Japanese and Chinese colleagues with radical notions of their own about stamping nationality upon bridges and railway material.

If the French manufacturer could look ahead and defend his interests in the supply of materials, it would seem that his British confrère might profitably follow suit. However, the FAR EASTERN REVIEW has never attempted to interfere with, or give advice to, British firms in China, as they generally know how to advance and safeguard their interests without American suggestion. We have, at times, in the past, found legitimate points of difference in the policies of the United States and Great Britain and exercised our right as an independent newspaper to comment and criticize. We have, however, based our arguments on sound principles, they have never been poisoned by national antipathies or trade jealousies, and we have at all times given British enterprises proper support and the free use of our reading columns.

Some years ago the FAR EASTERN REVIEW was joined by Mr. W. H. Donald, formerly editor of the "China Mail." Mr. Donald is an Australian, a loyal Briton, and the writer was glad and proud to have him as a partner and editor. Because of Mr. Rea's absence from China, and his enforced silence by entering the Army, this has provided opportunity to competitors to circulate the story that the FAR EASTERN REVIEW has passed into British hands and is now a British organ. The report was accepted as official and published as such in the Commercial Reports of the Department of Commerce, and widely circulated by competitors amongst American manufacturers as a reason why they should extend their support to other purely American publications. It is immaterial to the publishers of the FAR EASTERN REVIEW whether it is known as an American or a British publication. We have carried the brunt of the fight in the past for a square deal to both countries, and although we may have erred at times in our criticisms of British policy, when we learned their side, we have always been ready to correct our mistakes.

In inviting the attention of the British manufacturers to the situation disclosed by the program of the new Consortium, we do so, that he may present his case before the British Government in the same way that the American manufacturer is bound to take the matter up with Washington. If Americans are to finance the British in China until the latter can take over their share of the burden and we then bind them to an agreement that will deprive them of the material benefits arising from this investment, it cannot be said we do them any great favor. In the last analysis, we have by weight of our present financial strength imposed upon the British the surrender of their trade position in China, and will have benefitted the Chinese by making possible the establishment of industries that will soon compete in other Asiatic markets with British products. If China was on an economic level with the nations of the West, this philanthropy might be justified, but to deliberately equip a nation of 400,000,000, whose labor can be purchased for twenty cents a day, seems like paving the way for our own industrial death. The FAR EASTERN REVIEW is a strong friend of China, but this friendship and sympathy cannot be stretched to advocate a plan calling for the investment of billions of dollars to place her on her feet, so she will become an industrial menace to the high-grade labor of the West.

However, this is only the personal opinion of an American journalist which may not meet with the ideas of the British Chambers of Commerce, any more than some of the philanthropic American organizations. It is, however, a fair issue, and we place it before you as our contribution to a square deal and a better understanding between the two nations.

Suppose this plan goes through, and suppose that Chinese and Belgian plants fail to obtain the bulk of these orders, who will benefit? There is only one answer; Japan. Japanese capitalists will find no difficulty in obtaining funds for the establishment of great railway material plants, and as long as her products come up to the standard specification, her firms must be awarded the business. So the outcome of the plan will be to divert this business, if not to China, then, Japan.

This in turn opens again the discussion of American or British co-operation with Japan, or with China, as the only means of obtaining the material benefits from the present American policy. This, however, is another story, but it must be faced.

Progress of Likin Abolition Negotiations

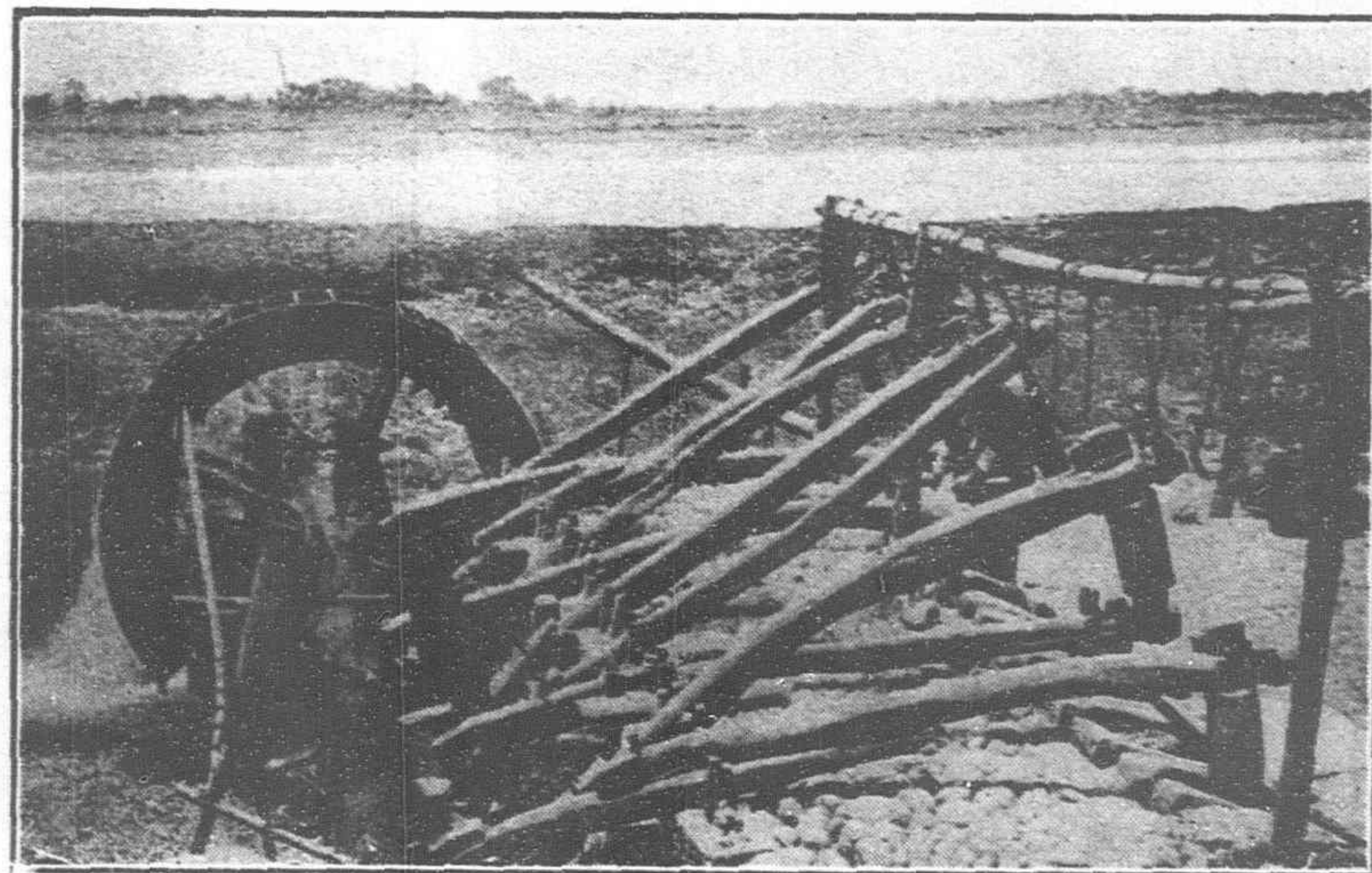
Since the Anglo-Chinese "Mackay Treaty" of 1902 the question of abolition of *likin* stations has always been on the table of diplomatic agenda between China and the Powers. According to the above important convention China will abolish these internal taxes so soon as the other treaty powers will likewise act upon the engagements of Great Britain. In return for such abolition the British Government consents "to allow a surtax, in excess of the tariff rates for the time being in force, to be imposed on foreign goods imported by British subjects, and a surtax, in addition to the export duty, on Chinese produce destined for export abroad or coastwise." That is to say, the promised surtax will be assessed at 7½ per cent. *ad valorem*, and foreign goods will then be dutiable on a 12½ per cent. basis.

Up to date, no such unanimous agreement on the part of the treaty powers has yet been reached and the promised increase of a mere seven and a-half per cent. has not proved attractive enough for the Chinese Government. In consequence, however, of the resolutions of the British Chambers of Commerce held last November in Shanghai, fresh negotiations are now in progress between the British Legation and the Peking Government on this subject.

The Chinese themselves realize the irksome burdens of the *likin* system and the Chinese merchants are only too glad to avail themselves of the foreign traders' privilege of protecting their goods from the octopus-like tentacles of this incubus by the transit tax system. If a tooth-brush costs only five cents in Canton, it will cost thirty cents in Kalgan, just because of the numerous vexatious and indefinite impositions *en route* under the trade-throttling system. So the problem is how to compensate adequately the Central and Provincial governments when the system is abolished.

For example, the import tariff after revision in 1918, is still short of the treaty-stipulated five per cent. effective duties. Even with the promised surtax of 7½ per cent. in actual enforcement after the abolition of *likin* it is calculated that the deficit which must be made good will be over six million dollars. Hence it is reported that with regard to the resumption by China of commercial relations with Germany and Austria the idea is to revert to the old national customs tariff for non-treaty powers—namely, taxes of ten per cent. on ordinary goods and twenty per cent. on luxuries.

On the one hand the foreign traders desire a veritable guarantee that with the abolition of *likin* no new allied taxes will be foisted on them. On the other hand, the Chinese Government will take no final action until the country is once more united under one central authority. Meanwhile a financial conference is planned to be held in Peking in March, attended by delegates from all the provinces when the proposals can be thoroughly discussed.



Chinese Water Power Rice Hulling Machine

This primitive machine for the hulling of rice has been used by the Chinese for generations. It is made almost completely of wood, and an examination of the photograph will clearly show how the hammers are lifted and released as the main shaft is turned by the under-shot water wheel. The grain is placed in motors carved from solid pieces of granite.

Chinese Bridges

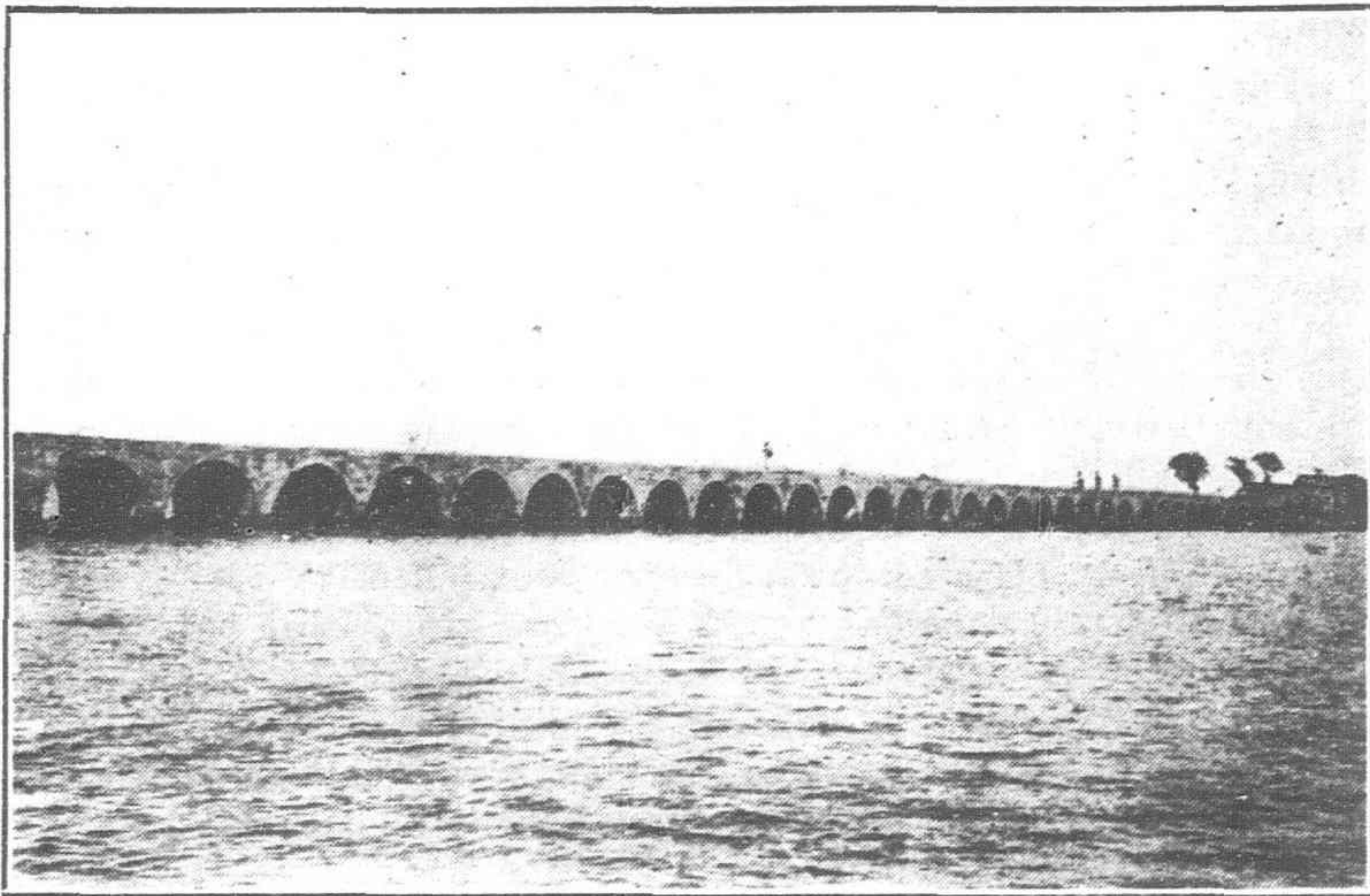
By R. W. Davis

GETTING to the other side was one of the first problems that confronted primitive man. It has remained a problem ever since and has been solved in numberless ways by different countries. Where the span has been short the bridge is the ideal link, and in no country are there more varieties of it than in China.

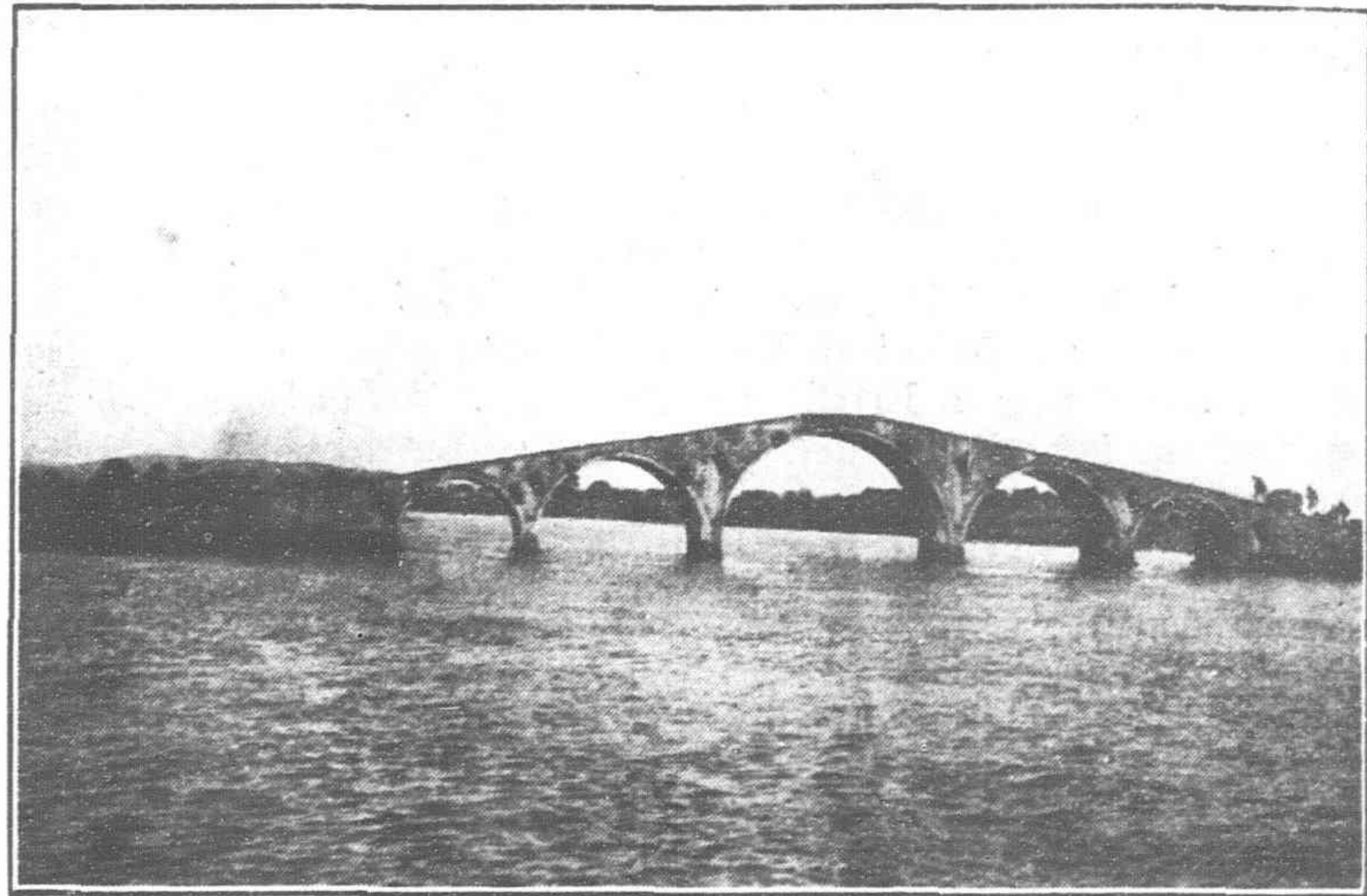
The accompanying photographs depict bridges in the far West and the near East of China. They all depend on local material and labor for their construction and indicate in a general way the character of their builders and users. In the wild west, primitive affairs of woven bamboo span otherwise impassable gorges and rivers, while in the more civilized parts of the Empire

bridges may be seen of great artistic beauty and no mean architectural merit, such as the marble bridges for which Peking is famous. The ingenious method of digging a loop in the canal or stream where a bridge is needed, filling in the real bed and building the bridge on dry land, and then digging away the original bed to fill up the borrowed one may often be seen in practice. This method explains to some extent the manner in which huge blocks of stone are fitted into place.

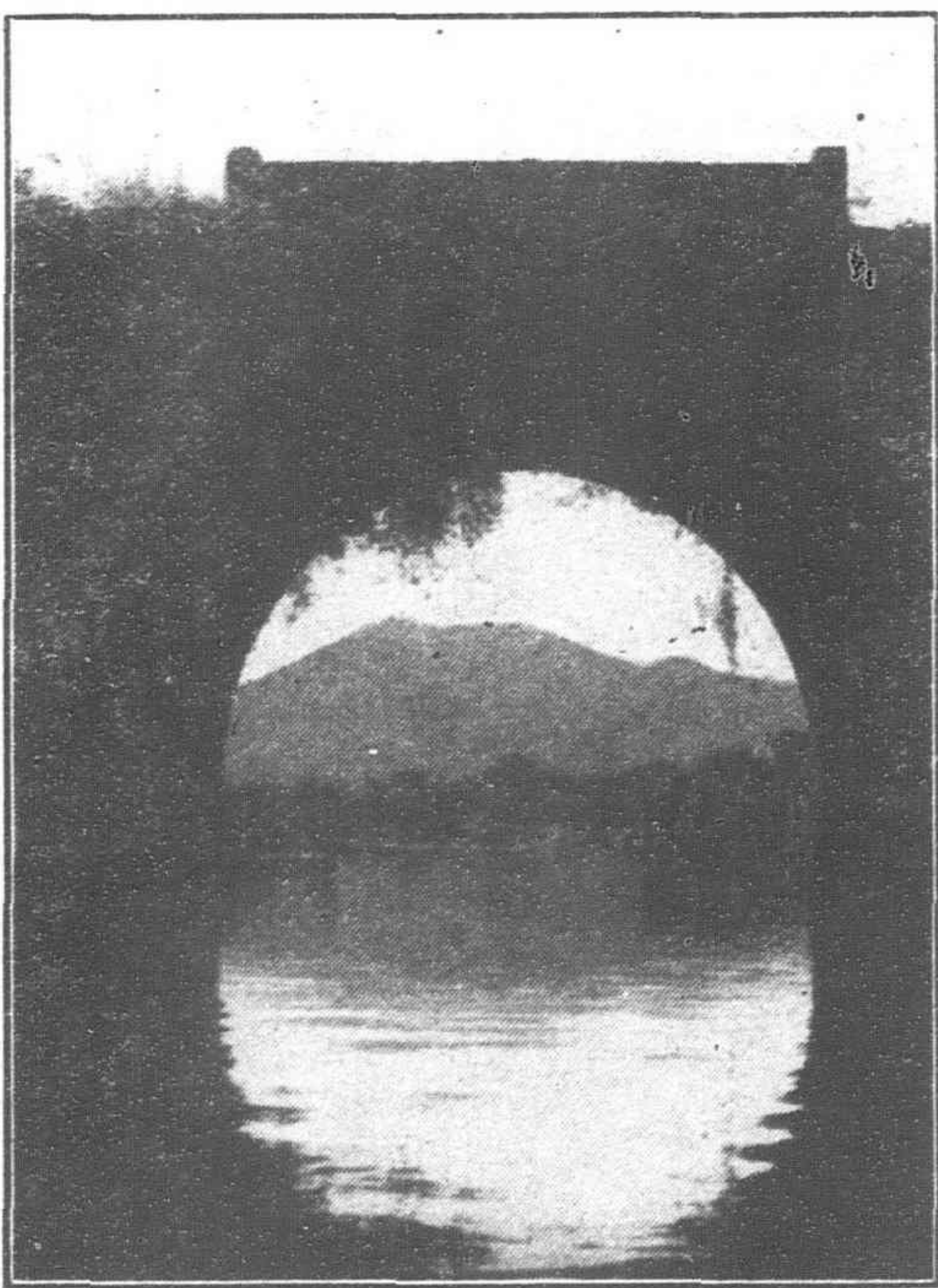
[We are indebted to Mr. R. W. Davis for most of the photographs; other of the photographs have been reproduced, with permission, from "The East of Asia" magazine.—Ed. F.E.R.]



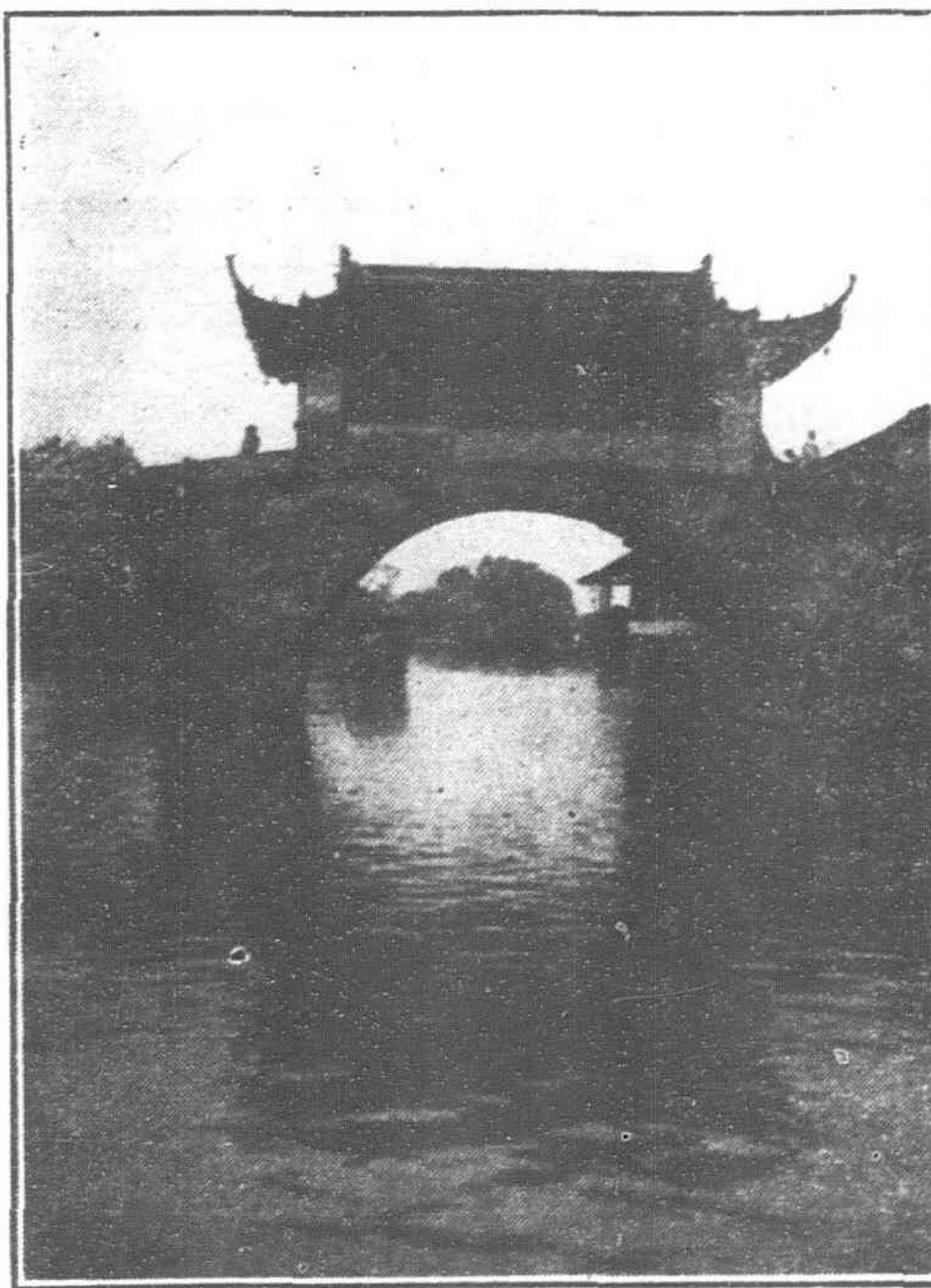
A part of the 53-arch bridge on the Grand Canal near Soochow. The photograph shows about half of it. On the main road between Shanghai and Soochow, which was once almost a crowded thoroughfare. It has largely lost its glory now that the railway runs almost parallel with it; trackers are its principal patrons to-day.



A camel-back bridge at the junction of two canals in Kiangsu. Its pleasing lines blend well with the flat lands of the Yangtze Estuary and, like all bridges in China of native construction, the building materials are those nearest at hand—a granite outcrop in a nearby quarry.



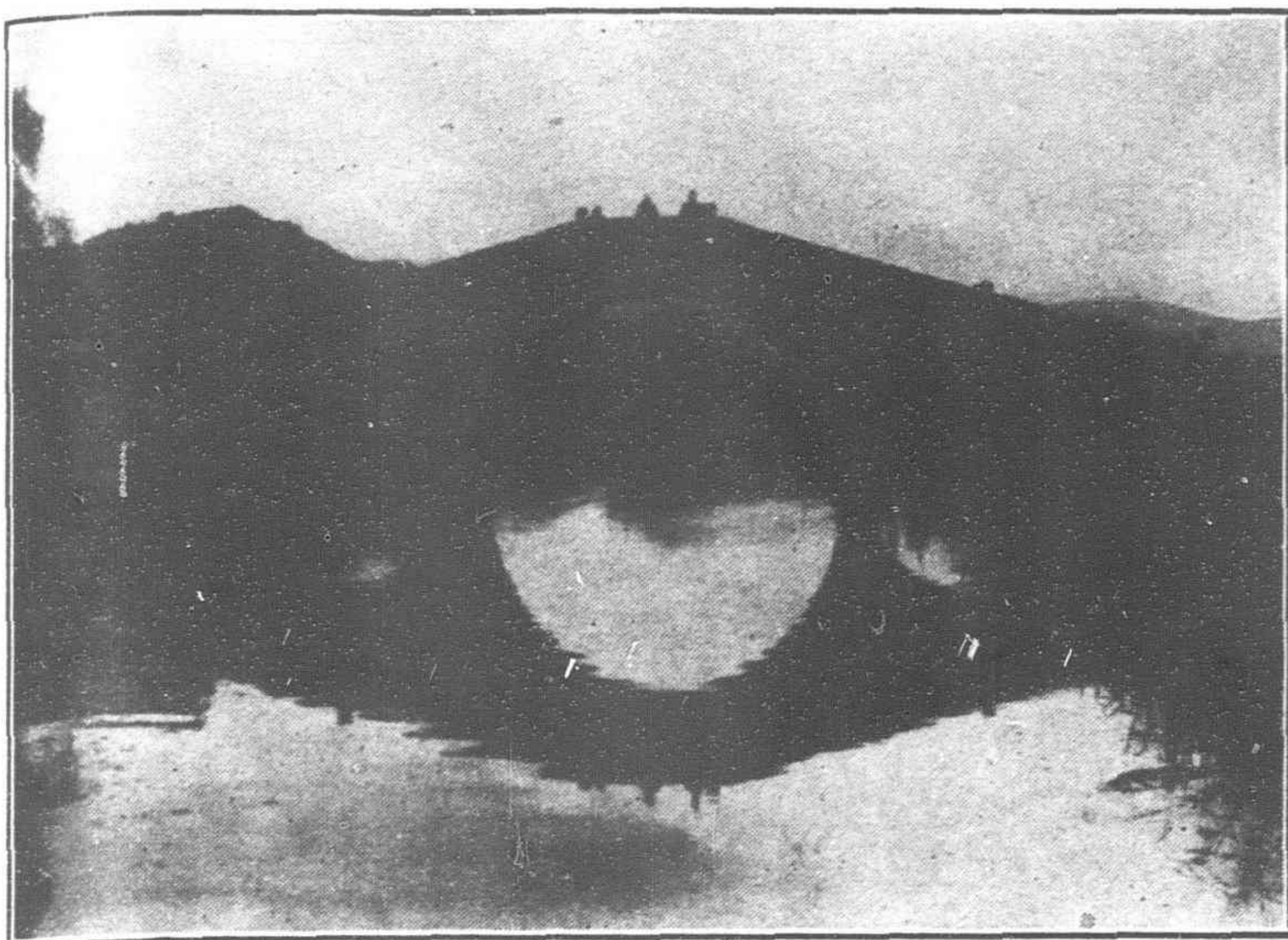
An old stone bridge on the causeway over the West Lake, Hangchow. Pilgrimages are made from distant parts of the Empire to enjoy the beauties of West Lake.



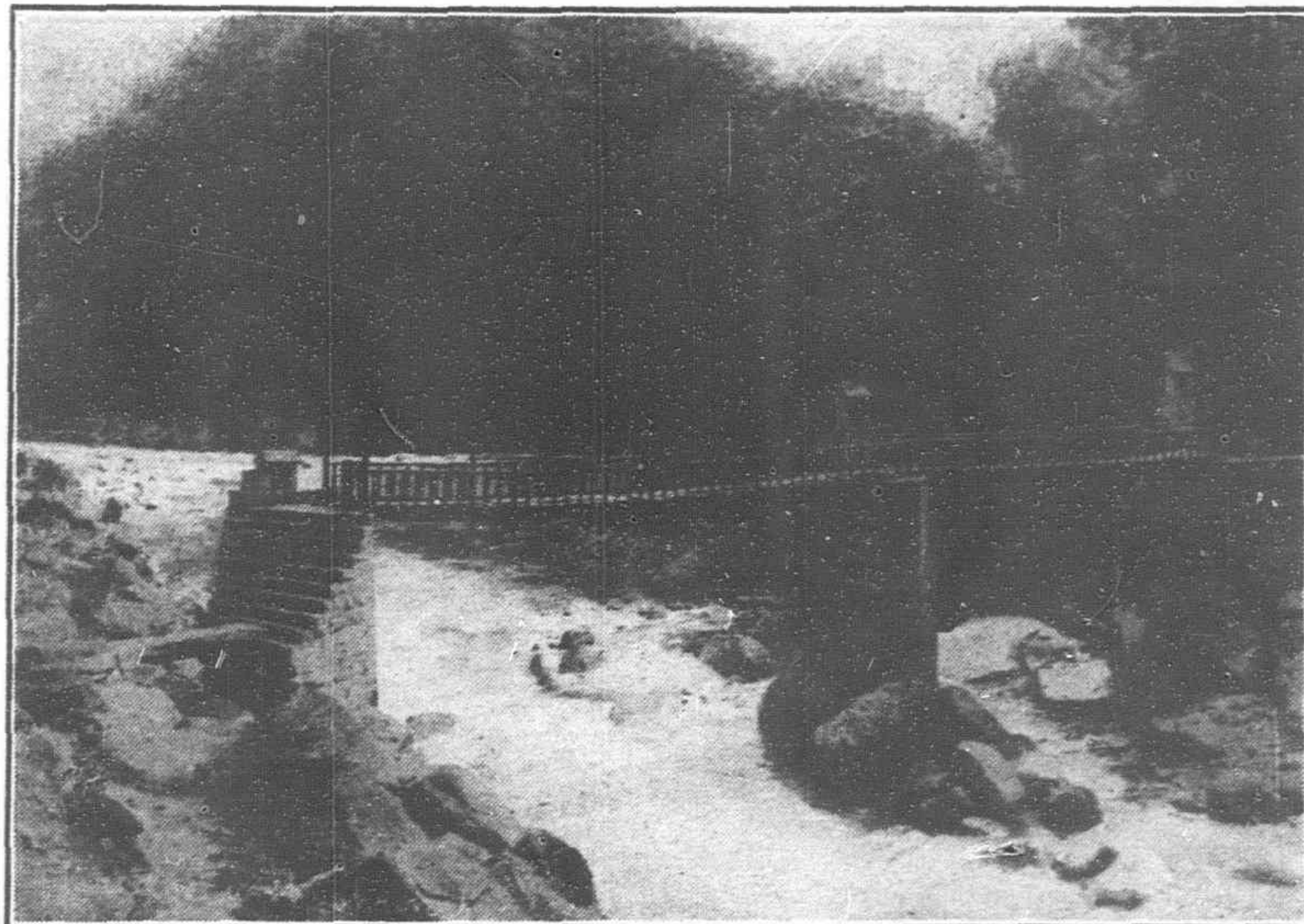
The House on the Bridge. A well-known landmark, or canalmark, between Soochow and the Tai Hu. This canal is rapidly shallowing and is blocked to deep draft traffic when the water is low.



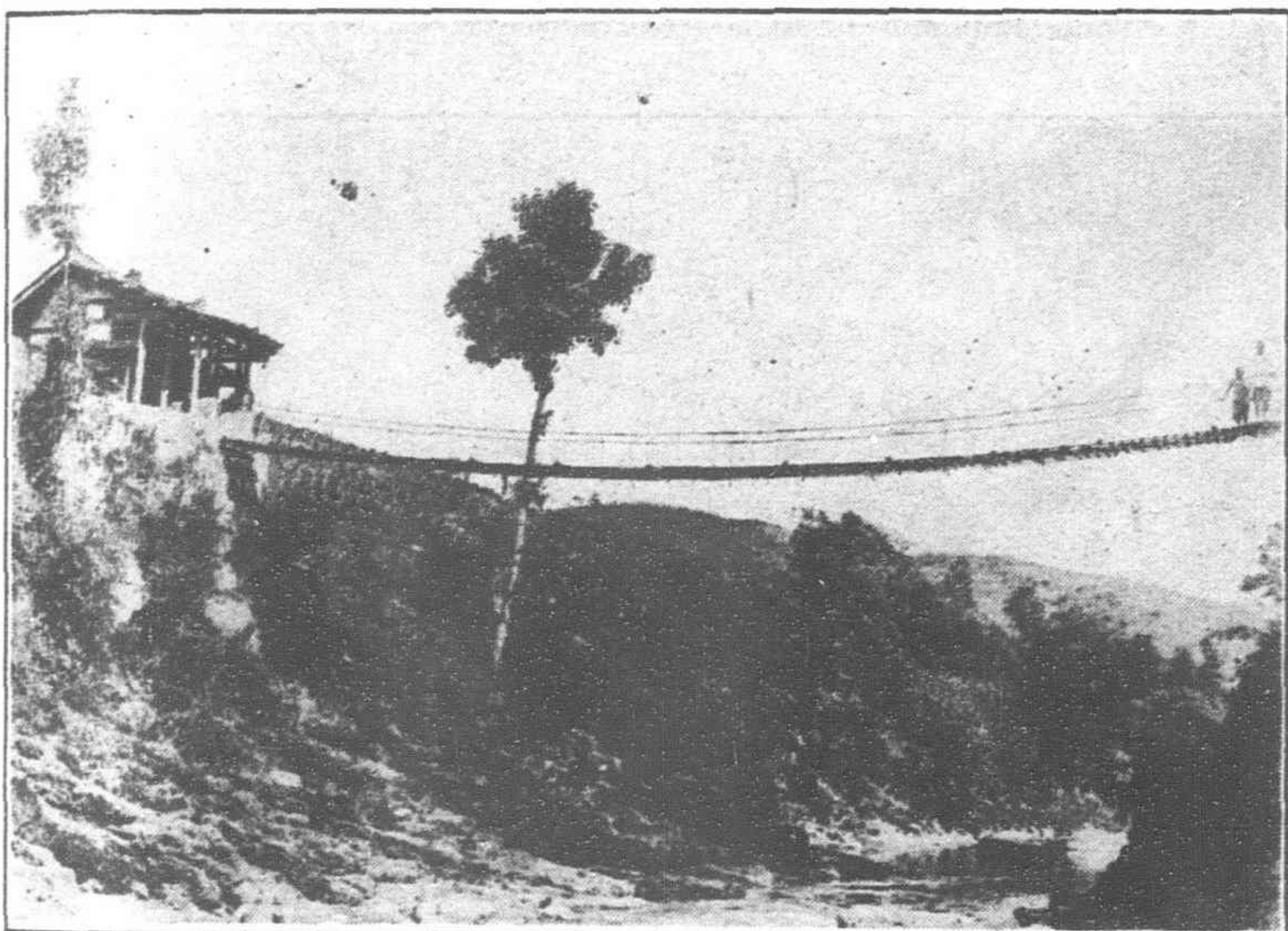
Toll bridges are quite common in China. A toll gate is shown in the photograph which is guarded by day by the toll-keeper and locked for the village's protection at night.



A well-built granite bridge near the Tai Hu. It is distinguished by a high stone parapet, an unusual feature, and bears an inscription lauding the builder.



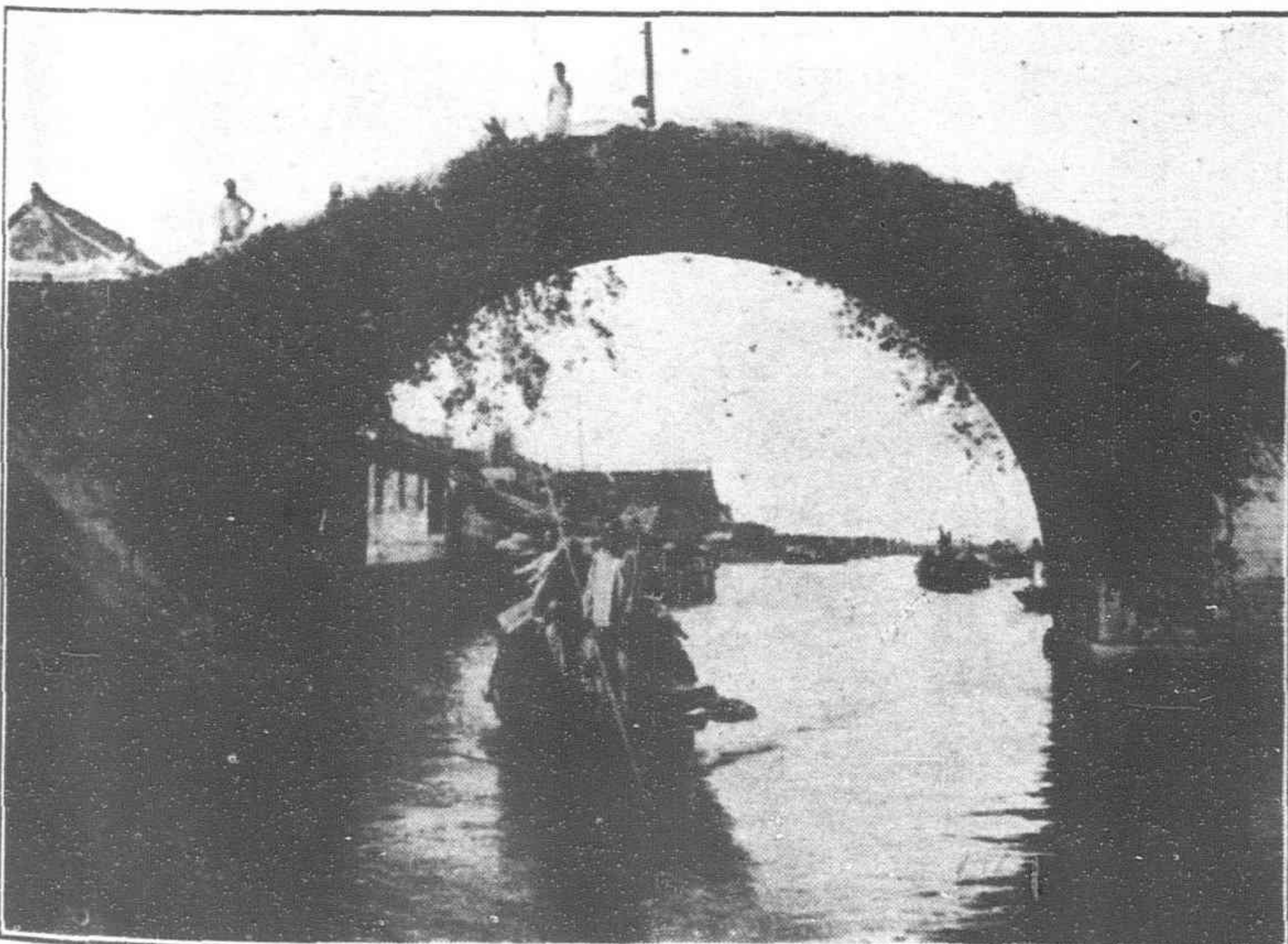
A Western China bridge over a mountain torrent. It is built on stone piers to which heavy chains are bolted to carry the road bed. A little shrine on each pier appeals to the wayfarer.



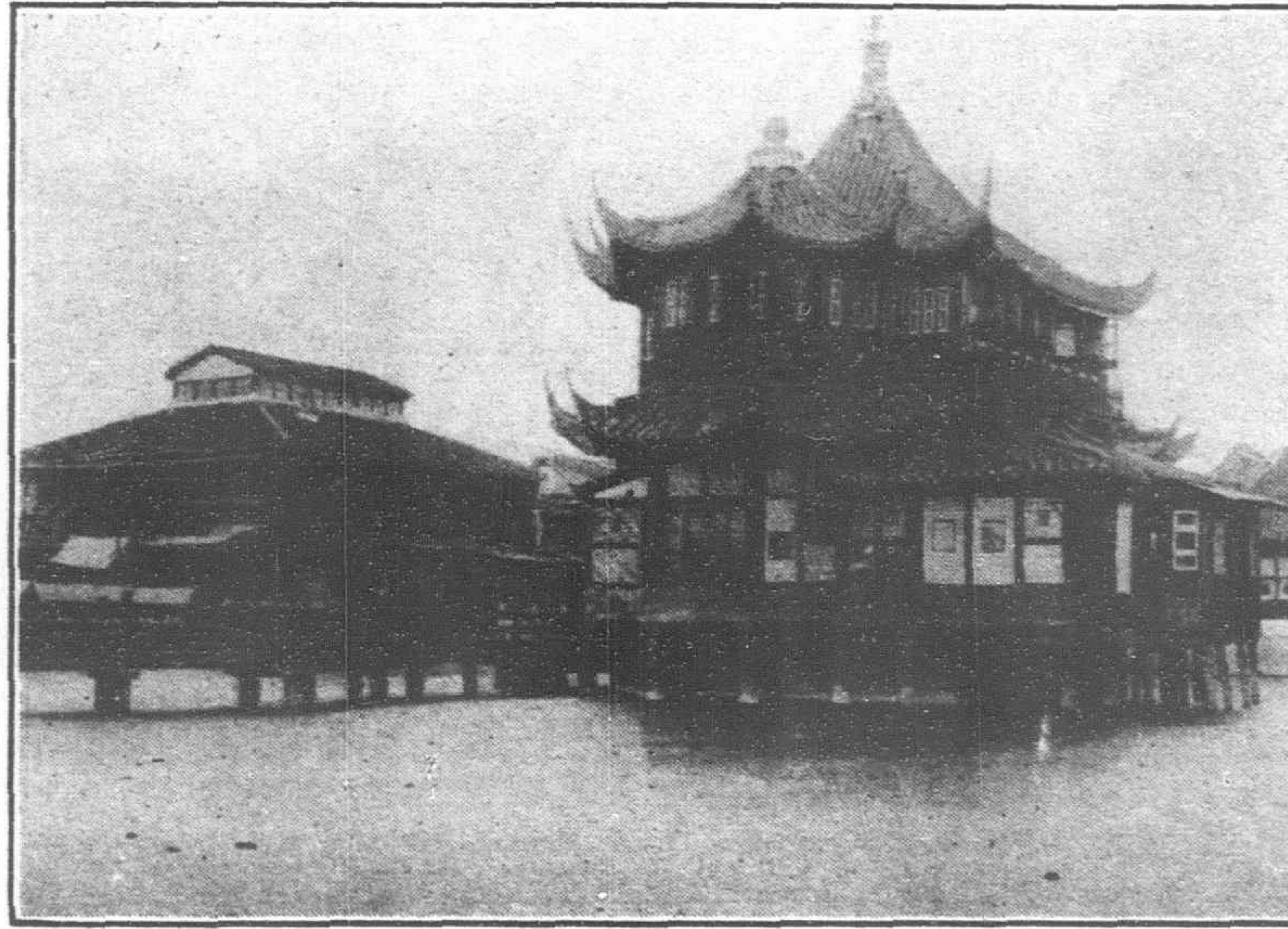
Near the Burmese border may be seen bridges of heavy wrought-iron chains, at the ends of which are uncouth-looking windlasses to keep them taut. The illustration is of a toll bridge in this region. In the windy mountain gorges of the West, crossing a swaying bridge a hundred or more feet high is no mean feat.



A camel-back stone bridge on the Grand Canal between Soochow and Hangchow. The smaller junks can negotiate it without lowering their masts. Like most bridges on the Grand Canal it is provided with a ledge (seen on the right near the water's edge) on which the trackers who tow the boats can walk.



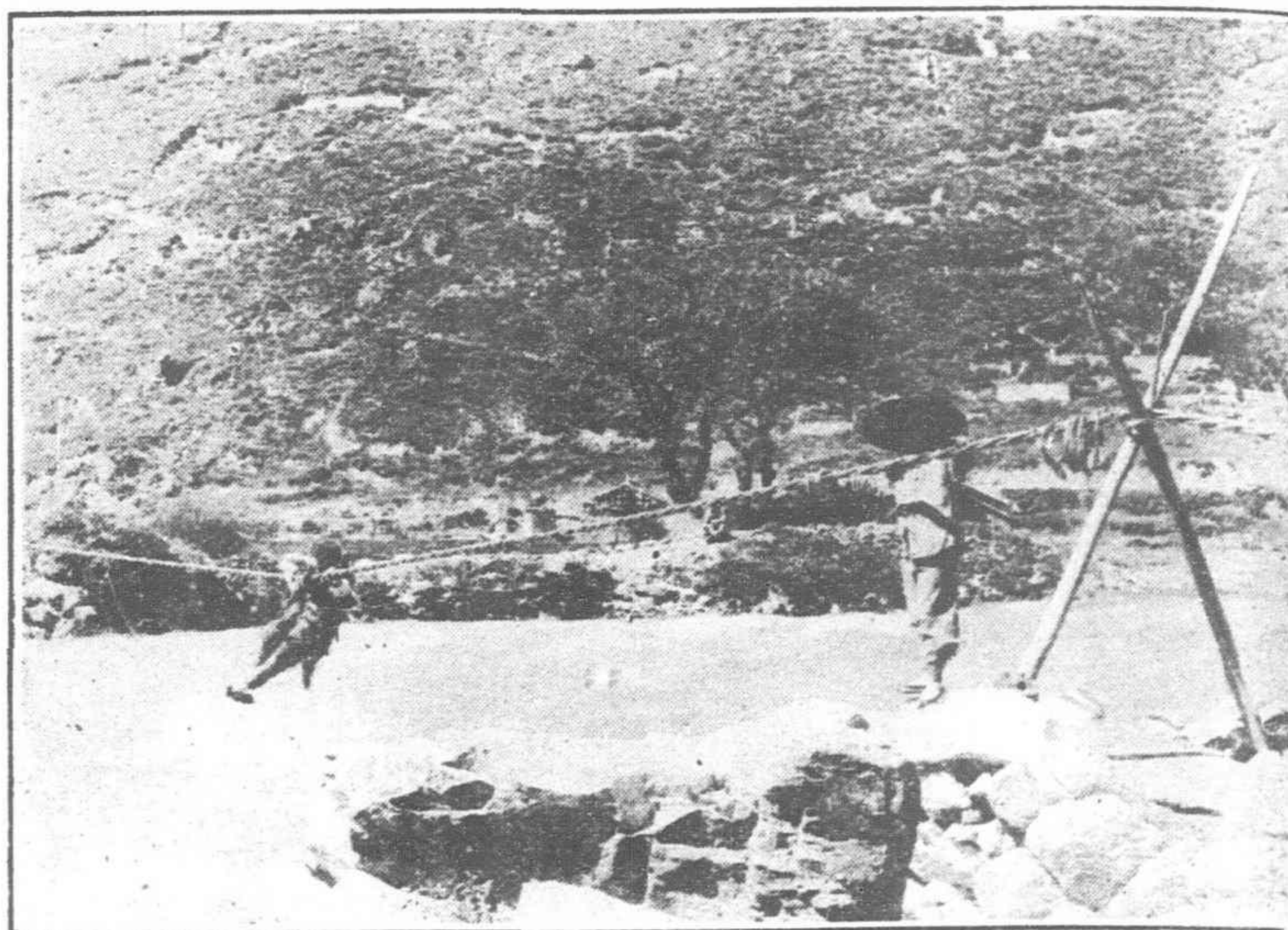
A creeper-covered bridge near Hangchow. It is built of a granite "shell" which is filled in with a primitive concrete. Seeds find root in this and soon the work of disintegration begins. A bridge's days are generally numbered when the first stray seed takes root.



Ornamental bridge construction. The famous bridge depicted on willow-pattern porcelain giving access to the tea house on the lake in the native city of Shanghai. A crooked wooden structure whose glory has long since departed.



A slab stone bridge connecting a temple island in Chekiang with the mainland. An extremely ancient type of bridge built of single stone slabs laid side by side, with a similarly built parapet. It is often a matter of speculation how, without modern mechanical methods, the Chinese cut such huge slabs, weighing often many tons, transported them across country and placed them in position. Given good foundations these bridges are everlasting.



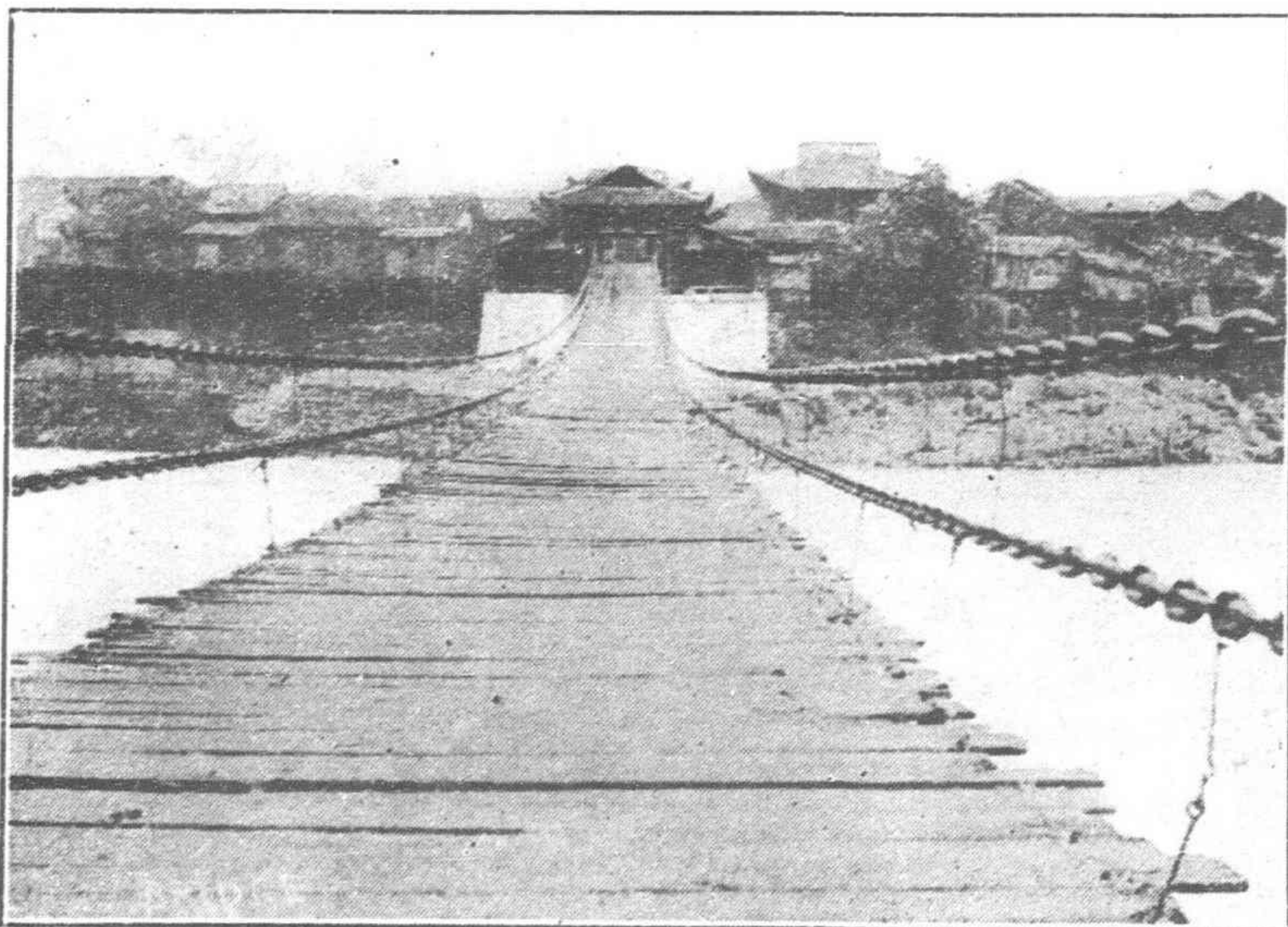
A giddy crossing on a cable swing bridge. The ravine is spanned by an almost everlasting bamboo cable on which runs a swing in which the traveller may sit. This can be pulled from side to side by a rope, but the first man of the party over must pull himself along hand over hand. It is a test of muscle, nerve and endurance. Might is often right in these mountain fastnesses, so a bridge that can be demolished speedily has its good points.



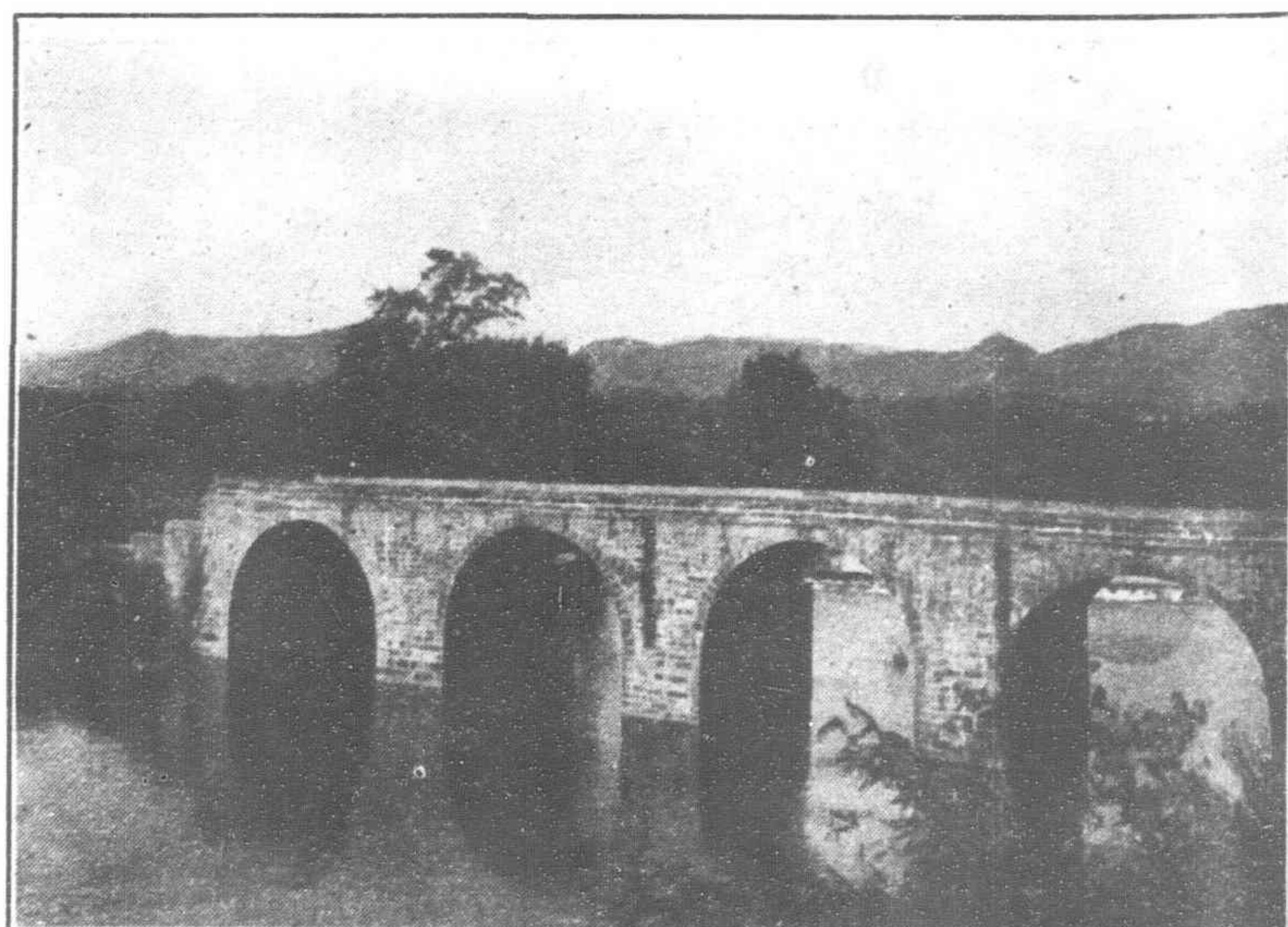
The parish pump in the West and the village bridge in the East are near relations. The population has turned out to see a novel spectacle up-country—a fast motorboat. The village bridge is generally crowded and is often an improvised market, accommodating peddlers, refreshment hawkers and fortune tellers.



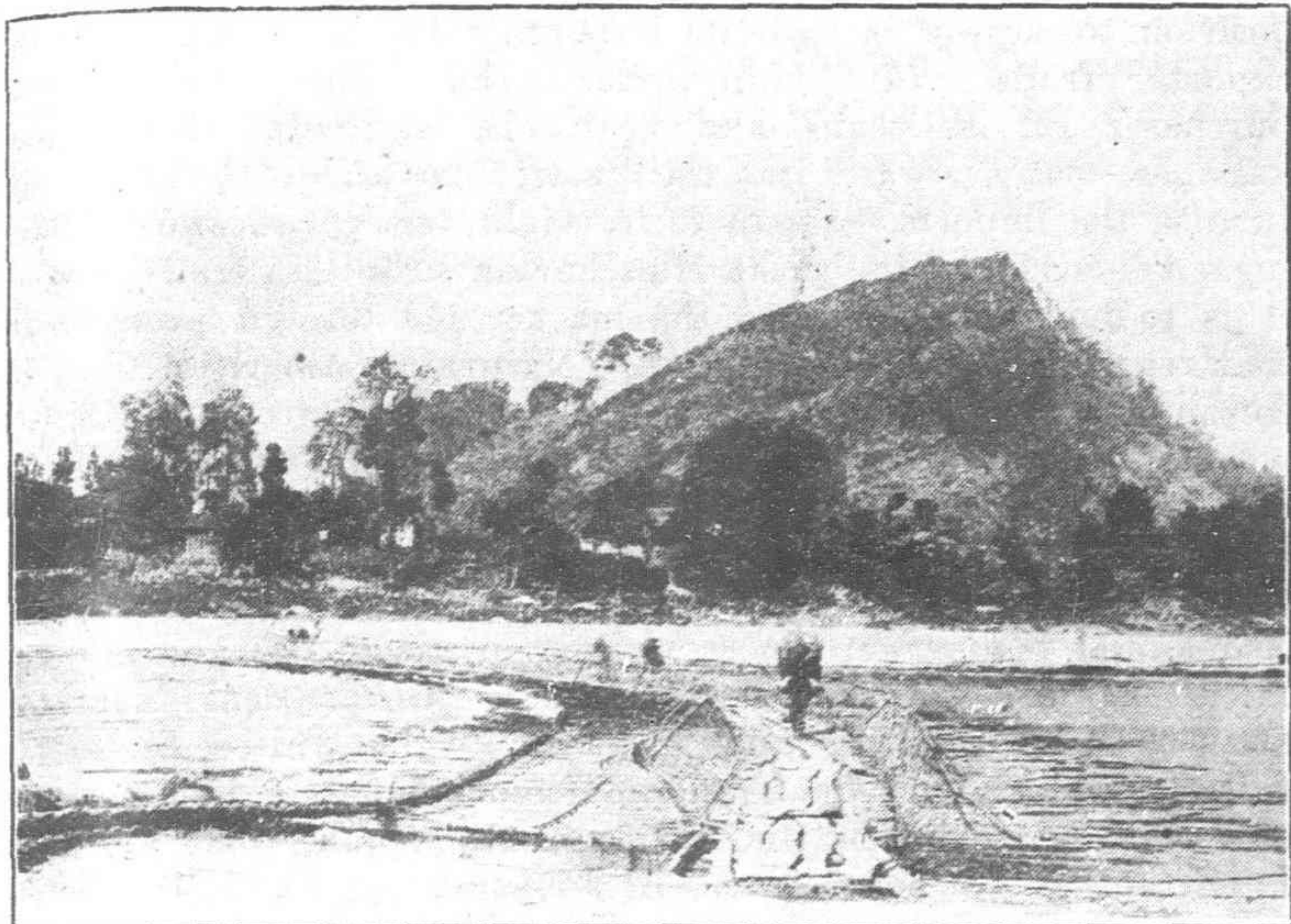
A mountain stream from the Huang Shan, Anhui, spanned by a village-built bridge of fir. It would require a very massive bridge to withstand the spates that rush down from the mountains in the rainy season, so a bridge that may be carried away without great loss is constructed. The roadbed is anchored to the banks.



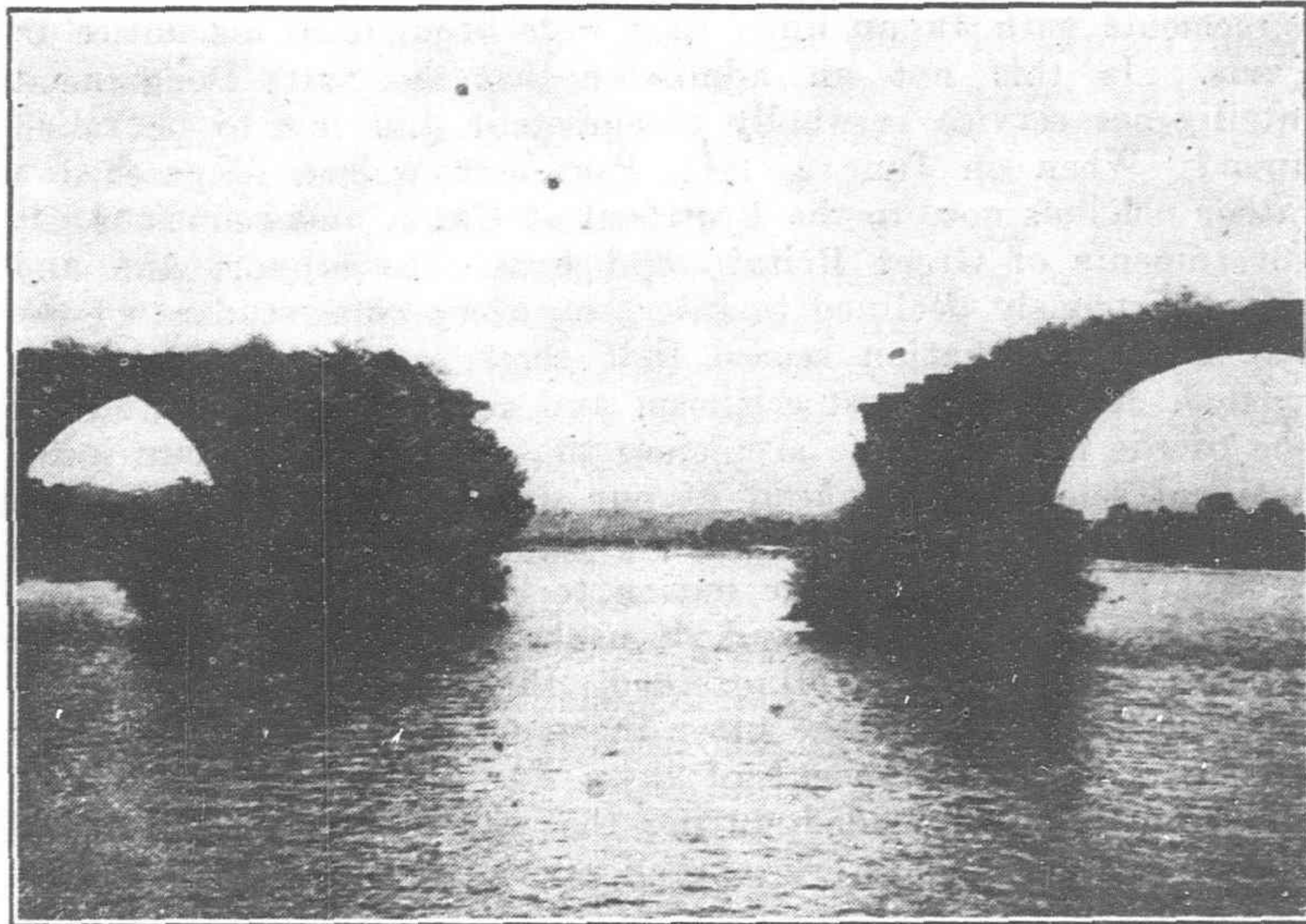
A suspension bridge on the road to Tibet. A fine example of primitive bridge-building, all the materials and workmanship being of local production. Toll is levied of the traveller for construction and upkeep, a fee gladly paid to avoid the dangers of ferrying the turbulent stream below.



A massive stone bridge over the Singan River in Chekiang. It is forty feet in width, yet is approached on either side by a native path on which two people cannot walk abreast. There is a story that it was built by a lover to make good the road to his mistress's house on the other side of the swift-flowing Singan.



A bamboo bridge over the Ya in Western China. The floats are made of thick bamboo, and the hawsers by which it is moored are woven of long splints of bamboo plaited into a rope several inches in diameter.



Decadent China. A granite bridge over the Chientang about 400 feet long, one of the arches of which has fallen in. In these democratic days the repair of public property is nobody's business, so where it falls it can lie. When freshets come down the water is almost up to the top of the arch.

Shall America Fight for China or Co-operate with Japan?

By Geo. Bronson Rea, M.E., Publisher of "The Far Eastern Review"

WILL the United States go to war to help China? Influences are actively at work to this end. Mr. T. F. Millard, who appeared before the Senate Committee on Foreign Relations as an adviser to the Chinese Government, testified that when the Kiaochow decision was announced in Paris, the unanimous opinion of the Far Eastern experts was that it meant war with Japan. In a subsequent magazine article he placed these words in the mouth of Mr. E. T. Williams, the chief American expert, which made them official. Mr. Williams has since reiterated this opinion in an address on "Shall America Stand for the Shantung Deal," delivered at a recent church meeting in San Francisco.

Mr. Williams said that "American soldiers had died in vain at Chateau Thierry and Belleau Wood, and as the result of propaganda America would be fighting Japan within ten years." He added that "President Wilson was helpless when confronted at the Peace Conference by the secret agreements between Japan, France, Great Britain, and Italy, concerning the disposition of the German rights in Shantung and the Pacific Islands." Mr. Williams has been the trusted Chinese expert of our government and for many years previous to his resignation was head of the Far Eastern Division of the State Department. Because of his intimate inside knowledge of the Administration policies and the events of the past five years in the Orient, he was called to Paris to act as the chief Far Eastern expert to the Peace Delegation.

During the time that Mr. Williams officiated over the Far Eastern Division, the Administration was called upon to face several delicate issues in China, first, in the matter of the Japanese Demands of 1915, then on the announcement of the new Russo-Chinese alliance of July 1916, followed by the additional Demands of Japan upon China arising out of the Chenchiatun incident, and the more serious situation created by the protests of Japan, Russia and Great Britain in October of the same year, and of France in April, 1917, against the activities of an American company in raising the issue of the Open Door at a time when they were fighting for their existence with Germany. It is on record that as each incident arose, the Administration refused to take action. Under no circumstances, no matter what might happen in the Orient, would our government take independent action, and fully justified its attitude by public statements to the effect that these issues were not the sole concern of

the United States, that all the treaty Powers were equally and vitally interested, and, therefore, having in view the unsettled condition of world affairs, the government of the United States could not take upon itself the task of facing these issues alone. The Administration told the country that it had decided upon the definite policy of postponing all consideration of Far Eastern issues until the expiration of the war, and then, either at the Peace Conference, or a special international convention to be called for that purpose, to have the status of China decided for all time. It was a typical example of the present Administration's methods of pussyfooting and sidestepping these matters which the general public accepted as sound and statesmanlike.

The press and public have forgotten, and as events proved, the promises to the nation were made to tide over a critical situation, for when the time arrived to make good they were ignored. The President's Far Eastern advisers, Sinophiles all, concentrated their fire upon Japan. When the President lost his case they deserted him, resigned, and hurried home to throw the onus of the defeat on to Colonel House and the President, and break the treaty in the Senate. Had our Delegation been more intent upon preserving American interests, the other Powers would have been informed at the outset of the negotiations that the Shantung question being only an insignificant part of the general Chinese problem, it could not be considered apart. Therefore the German rights in Shantung should be surrendered to the Allies in the Treaty, leaving Japan as Trustee, until such time as a special conference could take up the whole problem and definitely decide the status of China. The Allies and Japan would have had to accept, China would have been pleased, and the President would have lived up to the traditional policy of the nation, complied with his oft-repeated promises, and avoided the unseemly squabble in the Senate, and the widening of the breach between this country and Japan. The American Delegation chose the other road. A government converts its sacred promises to another nation into "scraps of paper" and the world plunges into a just war to chastise the breaker of treaties; an Administration sidesteps out of a difficult situation by solemnly promising the nation that it will settle the issue diplomatically when the proper time arrives, and then deliberately breaks its word and paves the way for hostilities. What is the difference between the two conceptions of the pledged word?

The Secretary of State testified before the Senate Committee on Foreign Relations that he was in total ignorance of the secret

agreements with Japan until they were brought to his notice in Paris. Is this not an admission that the State Department intelligence service is wholly incompetent and not to be relied upon? When on June 2, 1917, President Wilson despatched a rather officious note to the President of China and requested the governments of Great Britain and France to support him and they courteously declined to interfere, every close student of the Far Eastern situation sensed that these secret understandings existed. To escape just criticism and censure for manhandling one of the most delicate situations that has arisen in our international relations, the head of our diplomatic service discloses its incompetency in other directions. In plain words, the Secretary of State asks the nation to believe that the American Delegation with its shipload of books, documents, data, and experts, went to Paris blindfolded, thus furnishing the most conclusive evidence of the utter incompetency of the mission to negotiate a just settlement of these Far Eastern issues. With all the millions expended during the war on propaganda and diplomatic gum-shoe work abroad, not one diplomat or secret agent discovered the existence of these so-called secret agreements. The Allies were lined up against us, and we didn't know it. It seems incredible, yet we have the testimony of the Secretary of State that it is so. The situation was exactly like that precipitated in 1916 by the American railway contract with the Chinese Government, which simultaneously raised the issue of the Open Door with the Four Allies, and, on the public confession of the State Department was concealed from its knowledge for over four months by the American Minister at Peking, or, until the issue had been definitely created. One wonders what the American diplomats and their agents in London, Paris, Rome, Tokyo and Peking were doing all this time and how they expended the millions appropriated and placed at their disposal for acquiring exact information.

So, if Professor Williams' prophecy comes true, and propaganda will lead us into war with Japan within ten years, the pertinent question arises: What propaganda, whose propaganda? Will it be of the German type so roundly denounced by Roosevelt before he died, and referred to in the public announcement of the Lansing-Ishii agreement? Obviously, Japan will hardly carry on a propaganda to bring about hostilities with this country. We cannot accuse Mr. Williams and others of being under German influence, so it can only be such propaganda as is now being carried on by China, her friends and agents, who insist that the United States has gone too far to back out with dignity, and if for no other reason, we must now fight to preserve our trade and opportunity for the profitable investment of our surplus capital in China. Professor Williams corroborates and emphasizes a truth that I have been trying to drive home to the minds of American business men, that this constant agitation in America against Japan can only lead to disaster. And I say with all sincerity, that such a contingency will be traceable largely to the situation created by the Shantung deal in Paris, which should never have been permitted to occur.

Coincident with Mr. Millard's testimony before the Senate Committee, merchants and commercial bodies in this country interested in Chinese trade received circular letters from Mr. J. B. Powell, the associate of Mr. Millard in China, and Secretary of the American Chamber of Commerce of Shanghai, requesting them to call upon their Congressmen and Senators to demand from the State Department the secret and confidential reports about Japanese activities and intrigues in China. Since then, considerable publicity has been given in the American press approving the Chinese boycott against Japanese goods, all emanating from Americans in China. The American Chamber of Commerce in Tientsin has now added the weight of its influence to this campaign, and in letters to affiliated commercial bodies in this country, states: "China alone, without the promise of armed support, will not be able to obtain the setting aside of her concessions to Japan of 1915 and 1918," and then goes on to cite conditions in Manchuria as an example of what may be expected in Shantung.

These arguments overlook that Japan's dominant commercial position in Manchuria is the result of the operation of a fundamental economic law. The nation who purchases the major part of the exports of another country is in the most favorable

position to supply it with its imports. Japan monopolized the export trade of Manchuria, she was the largest purchaser of its beans and bean-cake and after the Russo-Japanese war, was in the most favorable position to furnish the imports. Japanese foresight, enterprise and business sagacity developed the great Manchurian soya-bean trade to what it is to-day, and expanded the market for foreign products in that region for the benefit of all. Naturally, American trade in cotton goods was displaced by cheaper grades from Japan. A howl of protest arose from the American and British merchants and appeals were made to their governments for protection against Japanese discriminatory and preferential practices. On the other hand, at the time American piece-goods merchants and commercial bodies were most violent in their charges of bad-faith against Japan, the Japanese Government borrowed \$60,000,000 in England and spent it in the United States for railway materials. American piece-goods suffered, but our steel and railway equipment industries profited, and, what was more important to American trade, in adopting our railway engineering standards and specifications in Manchuria, the Japanese did for us what we have never been able to do in China ourselves.

The piece-goods and other trades can never hope to appreciate nor understand the fierce antagonism of European nations to the establishment of American engineering standards in China, and how the American manufacturer was discriminated against in designing standards, specifications and the awarding of tenders. We were frozen out on all sides by the combination that monopolized railway construction in China. The peoples of the Orient now ride over the rails of the South Manchuria railway in American Pullman cars that in luxury, comfort, and exquisite cleanliness are not excelled by any of our more famous limited trains. American locomotives, cars, bridges, rails, signals, machine shops, hotels, and all that go to complete American railway and engineering practice are there, an object lesson to the rest of Asia, the one lone American line on the whole continent. Not a little jerkwater local line typical of the West, but an up-to-date, high grade, American railway, the last word in engineering efficiency. This great advertisement, our manufacturing interests, owe entirely to Japanese friendship and desire to co-operate with us.

And so it will be in Shantung and elsewhere. American piece-goods, muck and truck, and minor products, will suffer in competition with Japan. The Japanese may even employ artifices and discriminatory practices to insure that this trade goes to their manufacturers, but will not the loss in these lines be balanced by Japanese orders placed in America for the more important engineering materials? Can we hope to have it all? Japan must live. It is unfair for Americans to cry when they are hit in lines which the Japanese excel in. Must we have all the profits from the cotton goods trade? Japan purchases her raw product abroad, and, like England, makes a profit and sustains life out of her labor. Americans cannot expect to sell Japan the raw material, mill machinery, dyes, etc., and then hope to undersell her in China in the finished product. We cannot have it all our own way. Some lines of trade must suffer.

Americans who clamor for war with Japan when their particular line of trade is cut into by Japanese competition, should study the trade returns. They will then see that the interests of the majority must be considered. Let us take this one question of cotton goods, and we find that forty per cent. of our total trade with Japan during the past year was in raw cotton valued at \$131,160,386, or \$14,000,000 more than the total exports to China. Japan bought from us \$6,281,524 of machinery, \$25,048,733 in steel plates, \$3,582,056 in structural steel, \$5,871,000 in tin plates and \$3,704,000 in various kinds of wire.

We are selling to Japan the bulk of her raw cotton, the mill machinery and engineering supplies to work it into the finished product. Japan contributes the labor of her millions who must be housed and fed, whose toil enables her to purchase other essential products. Suppose we manufacture the cotton goods at home? The increased profits to the cotton milling industry would be at once offset by the decline in the steel and machinery business. It also means that in order to compete with other countries our cotton mills must employ the cheapest kind of cheap labor. In the United States this means women and children,

which in turn, makes for deterioration of the race, the same as has happened in the mill districts in England, the same as we are now witnessing in Japan. Is it not better for Americans to furnish the raw product which provides open-air, healthful employment to our blacks, and the mill and other machinery whose manufacture gives remunerative employment to high grade artisans?

The trade statistics are therefore the best guide. When Americans lift up their voices in protest against Japanese methods it would be well to remember these facts. The very manufacturers and commercial bodies appealed to in the United States to join these protests against Japan, are conducting a larger and more profitable business in other lines with the latter country. On the other hand, as China gradually enters upon her modern industrial life, will she not also close the doors to American and other foreign trade by the very cheapness of her products? As Japanese industries expand, she must always remain our good customer in steel, steel products, railway, mill equipment, and general engineering supplies. Under no possible condition can she hope to actively compete with us in these lines. In the first place she lacks the coal, iron and other requisites, and again she can never hope to match our quantity production. Can the same be said of China with her immense deposits of minerals whose development under foreign technical guidance will enable her to gradually force our products from the Orient and compete with us in other spheres, and ultimately in our home markets? Will not European capital, in order to escape the heavy taxation at home, seek to develop these Chinese industries and so gradually hit at us through the employment of this combination of unlimited cheap material and cheaper labor? American sympathy goes out to China because of her political troubles, and the Chinese reciprocate our disinterestedness. But friendship ends right there. China is one of the greatest potential markets for American products; she is also the greatest potential enemy to our industrial life. With the influx of European or American capital for the development of Chinese industries, the day will come when we will not only lose our cotton and general trade but will be seriously crippled in the more important steel and engineering lines.

The question arises: Is it best for us to co-operate with Japan or China in these matters? If with Japan, we are reasonably assured of preserving our predominant position in the engineering field, and must face the loss of minor business. If with China, it means the gradual loss of both. It is easy to argue on both sides of this question according to individual interests, but the above basic facts will always remain. We cannot have it all our way. Japan has to live and can do so only by becoming an industrial nation, importing her raw products and selling the finished article, the same as England. Unlike the latter she has no vast coal and iron deposits, so cannot compete with us in this the engineering market. These she will buy from us, if we treat her fairly, and don't cry for the whole pie, crust and all.

The Japanese have asked Americans to co-operate with them along certain lines in China, and, on analysis, this must be in engineering and development matters, in which they recognize our superior skill. They gave us a sample of their trend of mind in the equipment of the South Manchuria Railway and the development of the great Fushun mines and other industries. They antagonized their British allies by spending with us the loans raised in England, and provided us with the best advertisement of our engineering practice that can be found outside the United States. Understanding this, we can appreciate the attitude of Judge Gary and other American financiers and captains of industry when they come out openly for this idea of co-operation. Have the Chinese evidenced a sincere inclination to co-operate with us in the development of railways which American money is expected to build? We hear of Great Anglo-Chinese and other European schemes to manufacture steel and railway equipment in China, but there is no evidence or indication at this time, that any American firms have been invited to share in this semi-official business that our money will make profitable.

Yet, we have before us, what to all appearances, seems to be a concerted program on the part of ex-American diplomats, chambers of commerce, and other representative people, to plunge

this nation into war with Japan, and there is ample evidence that all of these war promoters are closely allied under one leadership. Mr. Williams, Mr. Millard, Mr. Powell, Mr. Evans, of the Tientsin Chamber and others, all present the argument from different angles, but the burden of their song is that the United States must go to war in behalf of China. Minister Reinsch resigned in a huff because the President was not guided by his counsel, and Secretary Lansing recently intimated his desire to resign from the Cabinet, the split between him and the President going back to the latter's refusal to follow his advice on the Shantung matter in Paris.

And what is it all about? Simply this. A group of pro-Chinese administration officials went to Paris with the set idea of discrediting Japan and making her relinquish the concessions extracted from China in 1915 and 1918. They went to the great conference that was to remake the map of the world, blindfolded, groping in the dark like lost children, as is fully revealed by the testimony of the Secretary of State. They wilfully overturned their own policy and broke the promises so glibly given to the nation when they were pussyfooting themselves out of difficulties. They led the President into a blind alley and left him there. To save their reputations and "face" with China, they resigned, abandoned the President, and are now clamoring for war with Japan as the only solution to a problem they were hopelessly incompetent to handle diplomatically.

With one breath they talk war with Japan, and in the next, appeal to the American people to lend funds to China. We have before us the illuminating spectacle of an Administration trying to organize an international consortium to accomplish through finance what they could not carry out diplomatically, and compromising the American bankers to advance over a billion dollars to China, while the chief Far Eastern adviser to that Administration is telling us on the speaker's platform, that through Chinese propaganda we will have to fight Japan within ten years.

The Chinese want American money and have sent our ex-minister to Peking as envoy-extraordinary to help raise the loans. On the other hand, they are encouraging a propaganda designed to pit the nation against Japan. It is a remarkable illustration of the inside working of the Chinese official mind, hoping that the American people will never wake up to the double game being played. If we are to invest over a billion dollars in China through the Consortium or otherwise, and then be called upon to go to war with Japan to assist our Chinese friends, the investment will turn out to be the most costly one we have ever taken up. If the original investment to place China on her feet is to pave the way for the expenditure of many more billions in waging war, it would seem that our best play is to copper the bet, and take out an insurance against war, by co-operating with Japan.

A few years of honest government in China and she will require no foreign loans, and, if she discards the science of warfare invented by Field-Marshal Wang Sun-ki in B.C. 2000, her four hundred million people will be quite able to protect themselves against Japan or any other nation without the armed assistance of the United States.

EDITORIAL NOTICE

The complete reversal of the policy of the FAR EASTERN REVIEW effected by its Publisher, Mr. Geo. Bronson Rea, in the course of recent months compelled its Editor—the undersigned (in the February issue)—to disclaim responsibility for views expressed by writers of signed articles. The receipt of further similar articles which the undersigned cannot endorse causes him to withdraw from his position as Editor of the FAR EASTERN REVIEW.

W. H. DONALD.

Electrification of the Abt Rack Rail Section Across the Usui Pass, Shin-Etsu Line, Japan

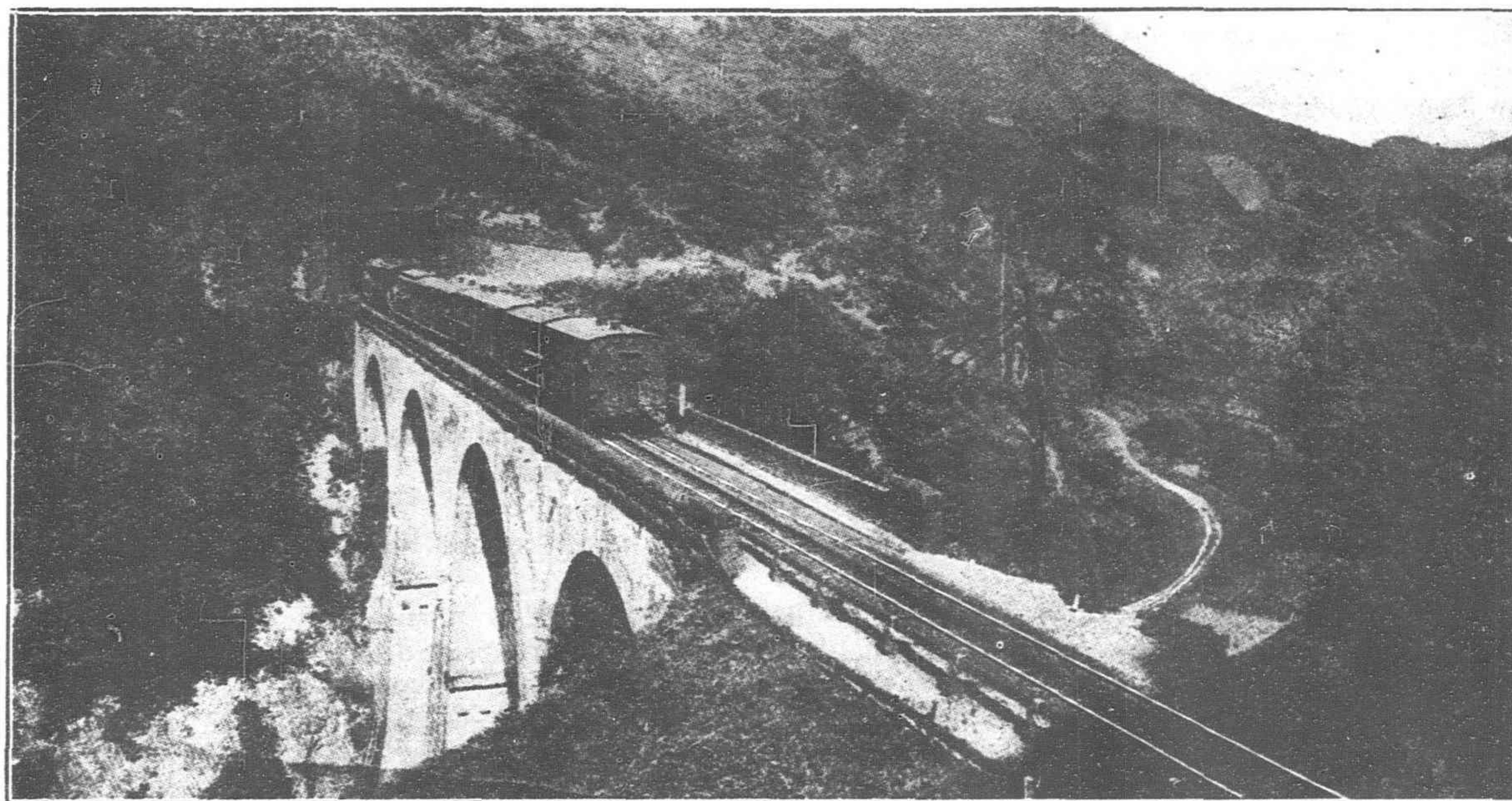
THE Usui Pass is located on the Shin-Etsu Line, and forms one of the steepest mountain paths in Japan, the highest point reaching 3,083-ft. above the sea-level. The mountainous configuration of the region rendered it impossible from the outset to locate an easier alignment than the existing one, where the difference in level amounts to 1,817-ft. in a length of about 6.9 miles between Yokogawa and Karuizawa. The engineers in charge were, therefore, obliged to drive no less than 26 tunnels measuring, in aggregate length, 2.8 miles.

magnitude, and it was not until May, 1912, that the electrified line was opened for public service after five months of trial running. Thus was accomplished the hardest work of electrification, whereby a couple of rack locomotives are worked to pull 14 cars up a steep grade of 6.7 per cent. for a length of 5.2 miles of the rack rail system—an engineering feat, which, at that time, was unexampled even in Europe and America. As was anticipated, the electrification has considerably increased the traffic, while the time taken in travelling from Yokogawa to Karuizawa has been reduced from 1h. 10m. to 43 minutes.

Track Construction

Before stating the main features of the electrification, it would not be amiss to give a brief description of the rail construction of the electrified section. The running rails in use consist of the adhesion rail and the rack rail, which can gear with the driving pinion of the locomotive. The adhesion rail adopted is the T-rail, 60-lb. per yard, which is bolted to steel sleepers with a gauge of 3-ft. 6-in., the centre of the rail section making an inclination of 50 deg. against the vertical line. The rack rail consists of three parallel sets of rack bars, 2,637mm. long, 110mm. high, and 20mm. thick,

which are placed centrally between the running rails and are bolted to the same sleepers as the adhesion rails. The three bars are spaced 40mm. apart from each other, with the pitch line 55mm. above the level of the adhesion rail. The teeth of the rack bar are of 120mm. pitch and 60mm. wide at the pitch

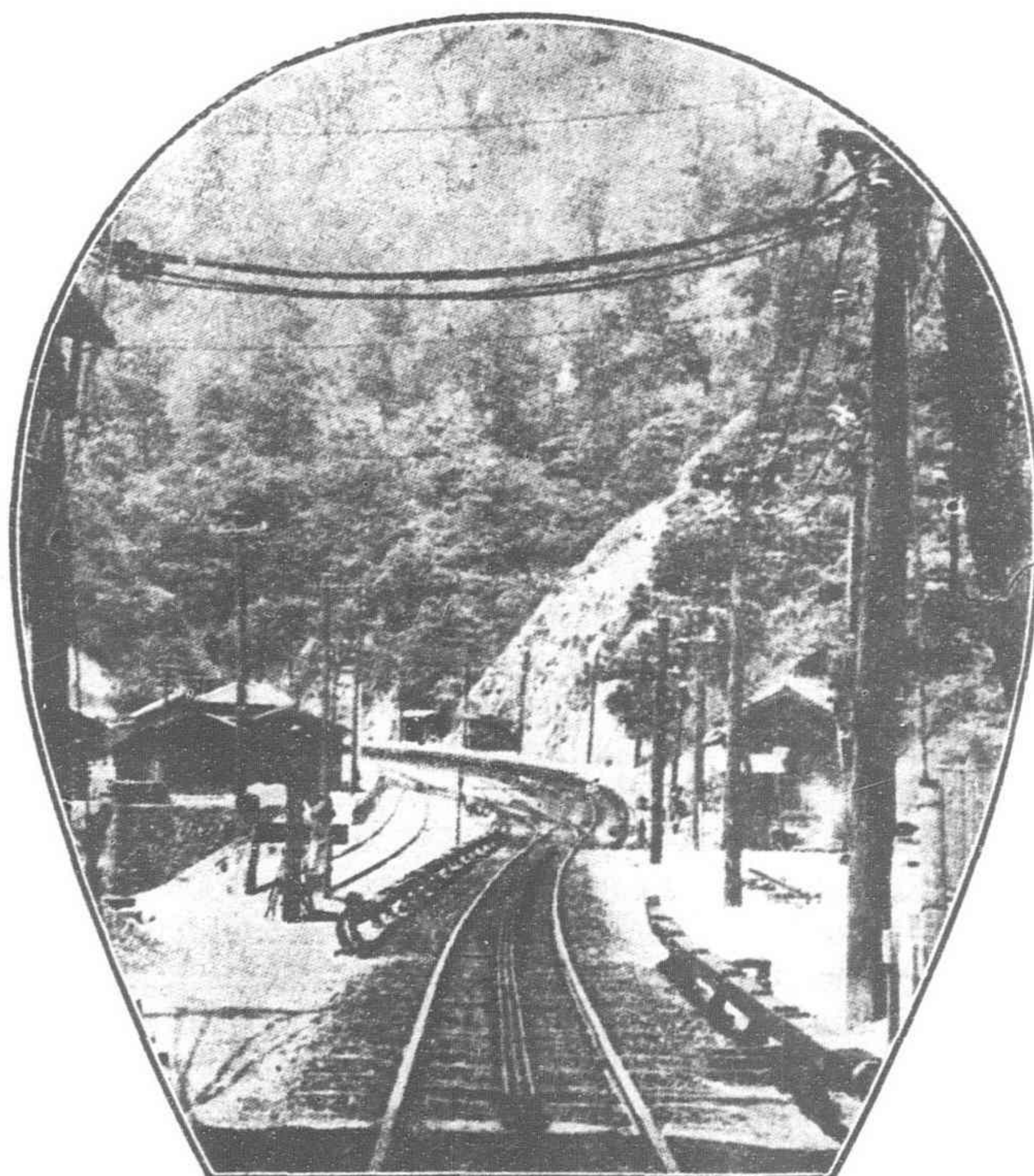


Electric Train up the Grade of 1 in 15 on the Rack Rail, Usui Pass, Japan

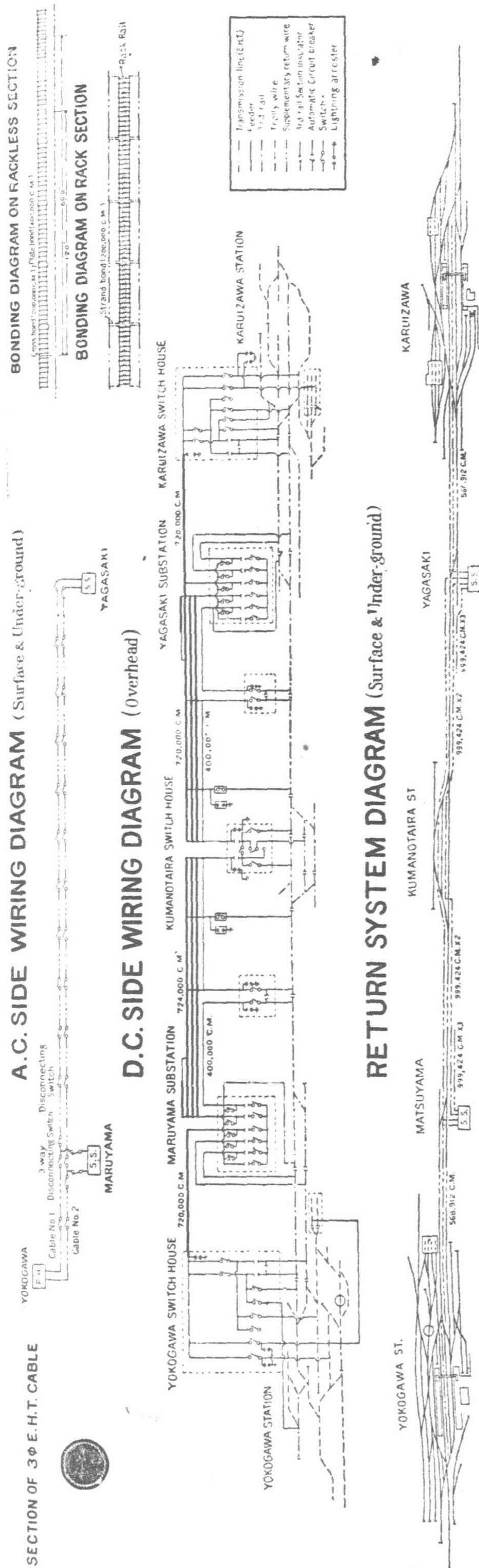
To overcome this enormous difference in level, the original line was constructed on the rack rail system on a steep grade of 1 in 15 or 6.7 per cent., for a matter of 5.2 miles, of the single track. The length of trains is limited by the length of the single turnout at Kumanotaira, at the centre of the line, where there is only 410-ft. between the two rocky ridges. Originally the trains consisted of one rack steam locomotive with five to six passenger and freight cars. Later, a double train consisting of two locomotives and ten to twelve cars was adopted. The steam trains were formerly designed for a speed of only 5 miles per hour, taking one hour and a quarter in crossing the pass. The journey was, for the greater part of the way, a most abominable experience, on account of the deafening roar of the engines combined with the hissing of steam pipes, and above all the suffocating vapour and smoke which found their way into the cars, as the train passed through the series of tunnels. The ordeal was particularly acute for the engine-drivers and stokers, owing to the inadequate supply of fresh air, and more than once they were found prostrate, choked practically to death or spitting blood.

The elimination of this nuisance had long been the subject of careful investigations by the authorities. Meantime the growth of traffic over the line was such, that a regular train schedule of 36 trips per day was found inadequate to cope with the situation. It was impossible, however, to increase the capacity of the line by additional train service, as this had already reached the limit of steam operation.

The authorities came to the conclusion that the only effective remedy lay in the change of motive power, and accordingly the electrification of the line was projected in 1909. In April, 1910, a substantial start was made upon the work, which was, however, seriously delayed by the occurrence of a flood of rare



Kumanotaira Station Yard



line and about 52mm. wide at the top. The parallel bar is so laid that each tooth makes a displacement of one-third (or 40mm.) against the other.

The ends of the rack rails are provided with a special apparatus known as entrance tongues, so designed as to allow the driving pinions of the engines to gear easily with the racks. The apparatus consists of tongue rack bars bolted together in the same manner as the ordinary rack bars, the entrance tongue being fastened to the steel sleepers by means of elliptic springs. This ensures the rack bars being pressed down, without damage, by the driving pinions of the passing engine. The rack bar of the tongue is, at one end, cut out similarly to the ordinary rack bar, but it is curved at the other end, the height of the teeth diminishing gradually towards the end, until they are smoothed over. The teeth are 3,275mm., 3,315mm., and 3,355mm. in height, the number of teeth being 25 and over per bar.

Power and Distribution

Electric energy is obtained from a steam power station near Yokogawa specially erected for the line. The station contains three 1,000 k.w. vertical turbo-generators, which supply three-phase current at 6,600 volts, 25 cycles. The steam for the turbines is generated in eight water-tube boilers with superheaters and chain grate stokers. The high-tension, three-phase current is transmitted to the two substations through two circuits of underground armored cable, where it is transformed to six-phase current at 240 volts and then converted to direct current at 650 volts by means of rotary converters.

The substations, which are located at the highest and the lowest points of the rack section, are each provided with two 450 k.w. rotaries and 312 cell storage batteries with a capacity of 1,320 ampere hours, which are designed to buffer the fluctuations of load in connection with a 100 k.w. Pirani automatic reversible booster. For feeding purposes, four overhead cables are laid between the substations and connected in parallel through the circuit breaker in the Kumanotaira switch house located at the middle part. An overhead cable is laid between the substations and the termini of the electrified section. The feeder cables are fixed to wooden poles on the open track, while in the tunnels they are carried on brackets.

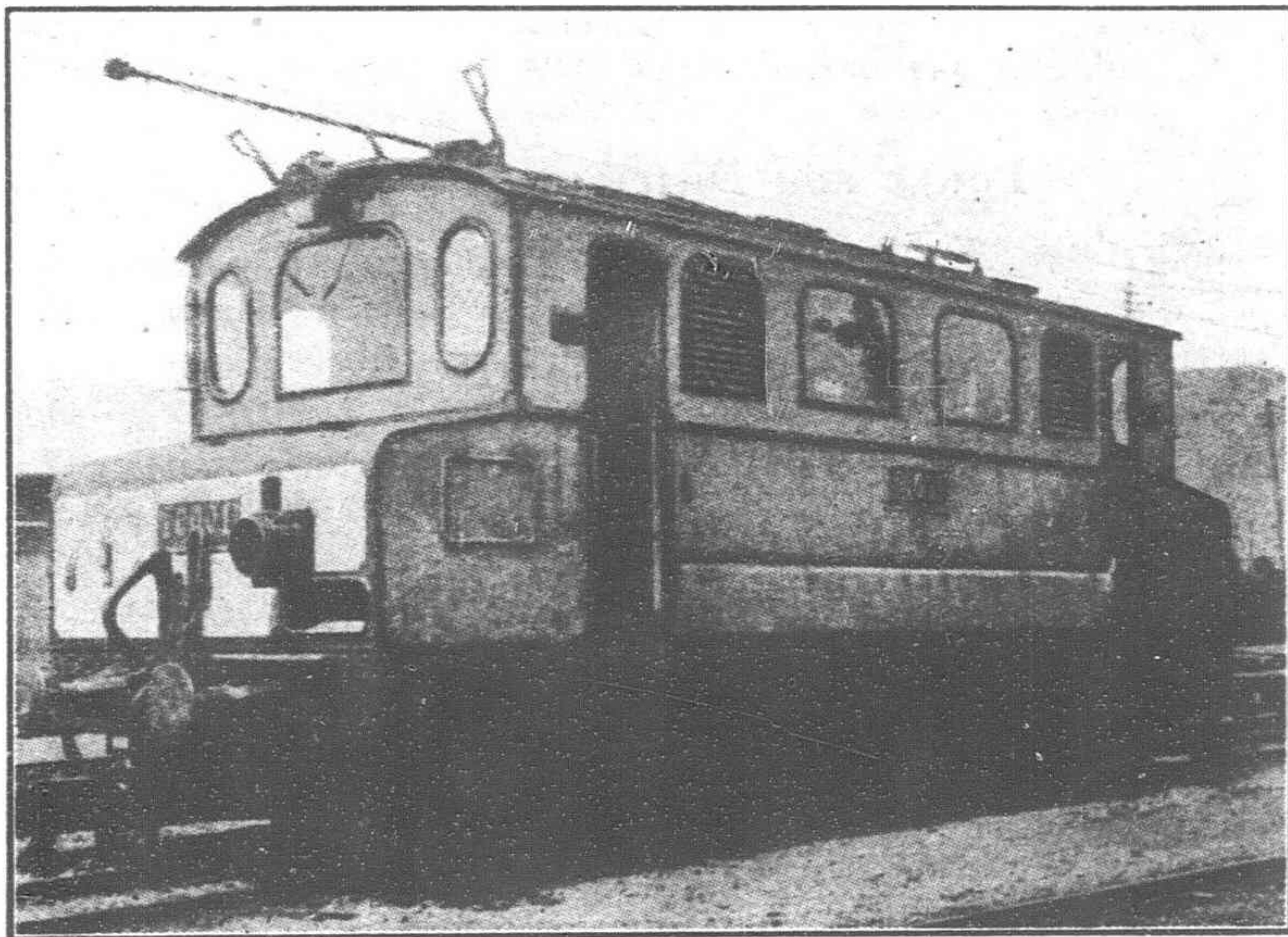
One of the chief reasons for the selection of the low pressure of 650 volts was the difficulty of securing satisfactory insulation in the narrow tunnels, which made overhead high-tension impossible from the outset. On the other hand, with the outputs and current in question, the third-rail system alone could be considered for the line, and this system just came within the limits of practicability for a pressure of 650 volts, when allowance was made for the somewhat moist atmospheric conditions of the tunnels.

The protected under-running contact has been adopted for the third-rail system. The conductor rail in use is a special double-headed steel rail, weighing 90 lbs. per yard, the conductivity of the rail corresponding to about 40 per cent. of pure copper. The conductor rail is supported on malleable iron brackets and a set of porcelain insulators, spaced about 8-ft. apart, and the brackets are screwed to the wooden sleepers, which are, in turn, fastened to the running rails. The contact surface of the third rail is 4-ft. 10-in. from the track centre and is supported at a height of 6½-in. above the rail level. At the Yokogawa and Karuizawa yards, the current for the movement of a single locomotive is collected with a trolley wheel from an overhead catenary line. The current is returned through the rails and bare cables laid beside the track.

Locomotives

The rack electric locomotives, 12 of which are now in service on the section, are designed with separate drives for the adhesion and rack sections of the line. Each locomotive weighs 42½ tons and is capable of drawing, at a speed of 11 miles per hour, eight cars on a grade of 6.7 per cent. It has two direct current series motors of 330 h.p. By means of gears and parallel rods, one motor is connected with the driving wheels and the other with the rack machine in the inner frame. The driving wheels and the rack machines are designed to work independently of each other. The collection of current is effected mainly by means of shoes contrived to slide along the undersurface of the third rail. The motors are controlled by means of thirty-two contractors, and the controlling current is supplied by an 80-volt storage battery. The controller contains three drums. The main drum and the reversing drum correspond to the drums of an ordinary controller for contractor control, but the third has two auxiliary contractors, which, corresponding to the three positions "adhesion," "rack," and "brake," group the main contacts in the manner required for the different forms of service.

On the adhesion section the locomotive is driven solely by the adhesion motor. The rack motor runs on no-load, and maintains a constant speed, which is approximately the same as that of the adhesion motor. On the rack section the motors work with the usual series-parallel connections, the motors being in series on the first nine steps and in parallel on the remaining six steps. On the ninth and fifteenth steps the motors are shunted. By altering the shunt resistances, the distribution of the load, which changes with the wear of the driving wheel diameter, can be adjusted between the rack and adhesion motors. The first six



A Rack Electric Locomotive

positions of the controller are used for operating the electric brake. For the short-circuit brake, which is always used on down grades, the armature of one motor is connected in series with the field of the other motor and with a set of resistances. This crossed-brake connection makes the brake act with absolute certainty, whether the position of the reversing controller corresponds to the direction of rotation of the motors or not. The current then generated in the motors is converted into heat in the resistances, which are also used for starting up. On down grades the short-circuit brake is supplemented by a vacuum brake. In addition, a hand brake combined with the vacuum brake rigging is provided for contingencies.

Cost

The electrification of the line cost approximately Y.2,269,000, of which Y.763,648 was for the equipment of the Yokogawa power station, Y.311,471 for the two substations, Y.541,065 for the line construction, and Y.472,810 for the locomotive equipment.

Results of Working of Electric Locomotives

The results of working of the electric locomotives over the Usui Pass are given below:—

	Electric locomotives	Mileage travel- led by electric locomotives	Vehicle mileage hailed	Current consumption	Current con- sumption per locomotive mile
		<i>mile</i>	<i>mile</i>	<i>k.w.h.</i>	<i>k.w.h.</i>
1913	10	87,722	536,215	1,642,050	18.72
1914	12	122,155	761,115	2,246,847	18.39
1915	12	136,409	900,879	2,549,124	18.69
1916	12	112,977	743,531	2,241,162	19.84
1917	12	127,444	841,449	2,535,118	19.89

Hands Off in Siberia

By George Bronson Rea

New York, December 19, 1919.—The speech of Premier Lloyd George in the House of Commons yesterday disclosed that the Allies had come to a complete agreement on the question of non-intervention in Russia, but that discussions were proceeding between the United States and Japan concerning future action

should the Bolshevik advance reach to any considerable degree east of Omsk. This confirms what was been known here in inner circles, that Secretary Lansing and Ambassador Sidehara have been engaged in conversations regarding Siberia and exchanging views over possible future developments and what should be done to check the Bolshevik movement. In these conversations the American and Japanese Governments have approached the matter from different points of view.

The Japanese Government considers the Bolshevik menace as involving the national security of Japan, but the United States, safe and secure by thousands of miles of the blue Pacific between it and danger, does not seem to consider the menace as acute. The American Government recognizes it vital that the Bolshevik machine be stopped in its eastward march, but is apparently unwilling to go further than words to place its policy into effect.

Japan stands ready to co-operate with the United States and the Allies in taking the necessary steps to cope with the danger. The Allies have agreed to keep hands off, so the question is now fairly up to the United States. If the United States is not willing to co-operate with Japan, it is understood that the latter country is prepared at the proper moment to go into Siberia alone.

So we have now reached the point of where a "show down" cannot be much longer delayed. If the United States refuses to co-operate (and neither the President or Congress could involve the nation in such an enterprise) it will not be possible to object to Japan's plans for her own, and China's safety. If the United States refuses to co-operate and China stands by in her usual helpless fashion, Japan will have to face the menace alone, and will then establish her right to be recognized as the dominant Power in the Far East, and to make good on her policy of special interests and the so-called Monroe Doctrine.

The American people will never sanction the sending of another overseas expedition to Siberia to make war against the Russians. We are now reaping the fruits of our unwarranted intervention in these Asiatic affairs, and find ourselves abandoned by our sensible European Allies, and face to face with Japan on the question of paramountcy in her own sphere. Japan has her own scores to settle with Russia, in which the United States is not interested. Our so-called Open Door Doctrine of 1900, which could not be made operative against Russia in Manchuria, paved the way for the Russo-Japanese war of 1904. Japan then paid the penalty, and has had to break the back of her people with enormous taxation to keep prepared for the "come-back" of Russia. Had not the European war intervened in 1914, Russia and Japan would have been in another death grapple on the plains of Manchuria before now.

The Russo-Japanese question is one that concerns Japan alone, especially at this moment when the peace of the Far East is menaced by the rapid spread of the Red Terror toward Irkutsk, China and Japan. Interference on the part of the United States in this vital issue of Japan's future can only result in widening the breach between the two countries. It is time for Americans to learn that they cannot cross the seas and dictate to other virile nations what they shall do when their peace, happiness and security are threatened, when they resent and fight against any interference in their own affairs.

It has been necessary for the Japanese Ambassador at Washington to make an official declaration to the American Government that at no time has Japan entered into negotiations with Mexico looking to the acquisition of special privileges or territory in that country. Intimations to that effect had been conveyed in a recent speech of Senator Fall, and the Ambassador said that these were founded upon misinformation deliberately spread abroad by German agencies which were energetically striving to prevent the displacement of German trade with Mexico by American firms.

Ambassador Sidehara felt it necessary to place on record a denial of the accuracy of these reports, and added that he was Under Secretary of Foreign Affairs in Tokio when the alleged negotiations took place. Most of these rumours had their origin in the Zimmerman note in 1917, which has since been skilfully used by propagandists to make it appear that negotiations of a nature to excite suspicion in America had actually taken place.

This sets at rest the oft repeated story of Japanese intrigues in Mexico. It is now up to the United States to follow a policy of Hands Off in Siberia.

Foreign and Chinese Enterprises in China

So many enterprises are now being inaugurated in China with joint Chinese and foreign capital that we have endeavored, as far as possible, to bring up-to-date a list published some time ago by the "China Advertiser," of Tientsin. So far as we are able to gather the following is a fairly complete list of Sino-foreign companies registered. In this list the nationality of the foreign capitalists is given first, then, in parenthesis, the Chinese name of the joint concern, then the names of the capitalists, the object for which the company has been formed, the amount of capital, date of incorporation, etc.:—

British, French and Chinese (Fukungssu); capitalists, Peking Syndicate and Shansi Board of Trade; enterprise, coal, petroleum and iron in Shansi; Capital, Tls. 10,000,000; incorporated, 1898; redeemed by China in 1908.

British, French and Chinese (Fukungssu); capitalists, Peking Syndicate and Yufeng Kungssu; coal, petroleum and iron in Honan; Tls. 10,000,000; 1898; now operating.

British and Chinese (Huitung Kungssu); capitalists, British Syndicate (Huitung Kungssu)-Huayi Kungssu and Szechuan Mining Bureau; coal, petroleum and iron in Szechuan; Tls. 10,000,000; 1898; now pending.

French and Chinese (Fuan Kungssu); capitalists, French Syndicate-Paofu Kungssu; coal in Szechuan; Tls. 10,000,000; 1899; invalidated by prescription.

Japanese and Chinese (Yicheng Mining Co.); capitalists, Tsurumitsu Dogura-Anhui Commercial Bureau; coal in Anhui; \$5,000,000; abandoned in 1905.

French and Chinese (Hohcheng Kungssu); capitalists, Hohcheng Kungssu-Paofu Kungssu; petroleum in Szechuan; capital unknown; 1902; pending.

French and Chinese (Yuanhsiang Kungssu); capitalists, (French), Yuanhsi Kungssuang (French)-Tienheng Kungssu; lead mines in Kwangsi; Tls. 2,000,000; 1902; pending.

French and Chinese (Laifu Kungssu); capitalists, Kaifu Kungssu (French)-Puan Kungssu; lead mines in Kweichow; Tls. 2,000,000; 1902; abandoned.

French and Chinese (Hsiangki Kungssu); capitalists, Hsiangli Kungssu-Paohsing Kungssu; antimony in Kweichow; \$6,999,999; 1902; pending.

British, French and Chinese (Lunghsing Kungssu); capitalists, Kunghsing Kungssu-Lunnan Kungssu; various mines in Yunnan; Tls. 50,000,000; 1901; pending.

French and Chinese (Tatung Kungssu); capitalists, Tatung Kungssu-Huayu Kungssu; various mines in Fukien; \$7,480,000; 1902; invalidated by prescription.

French and Chinese (Kiangpeimeikwang Kungssu); capitalists, Puchi Kungssu-Paofu Kungssu; petroleum, iron and coal in Szechuan; \$17,500,000; 1904; recovered by China and working since 1909.

French and Chinese (Talo Kungssu); capitalists, Talo Kungssu (French)-Tienyi Kungssu; mica and antimony in Kweichow; Tls. 2,000,000; 1905; invalidated by prescription.

German and Chinese (Changhsing Meikwangssu); capitalists, Carlowitz & Co., Representation of Commissioner Yu of China; coal in Shantung; Tls. 8,000,000, afterward increased to Tls. 2,500,000; 1906; recovered by China and now working since 1908.

Russian and Chinese (Russo-Asiatic Russian Bank); capitalists, Chinese Government; Banking; Rbls. 45,000,000; Tls. 3,500,000; 1896.

German and Chinese (Shantung Railway Co.); capitalists, German Syndicate-Chinese Government; Railway and Mining; Mks. 70,000,000; 1898.

German and Chinese (Chinghsing Mining Administration); capitalists, Von Hanneke-Chihli Government; coal in Ching-

hsing, Chihli; \$1,000,000; 1905. Cancelled; operating as Chinese concern.

British and Chinese (Mentowkow Mining Administration); capitalists, British capitalists-Chinese capitalists; coal at Mentowkow; \$1,000,000; unknown; abandoned on account of flood.

Japanese, Germans and Chinese (Merchants Guarantee Bank of Chihli); capitalists Messrs. Okura & Arnhold, Karberg-Chinese Government; Banking; Tls. 3,000,000; 1911.

Japanese and Chinese (Penhsihu Mining Co.); capitalists, Okura & Co.-Fengtien Government; coal and iron manufacturing; Y.7,000,000.

Japanese and Chinese (Yalu Timber Co.); capitalists, Japanese Government-Chinese Government; lumber business in Manchuria; \$3,100,000; 1908.

Japanese and Chinese (Liuta Flour Mill); Japanese capitalists-Chinese capitalists; flour milling in Shanghai; \$200,000; 1907.

Japanese and Chinese (Shanghai Silk Filature); Japanese capitalists-Chinese capitalists; Tls. 400,000; 1906.

Japanese and Chinese (Shanghai Silk Works); Japanese capitalists-Chinese capitalists; Y.100,000; 1910.

Japanese and Chinese (Changtu Co.); Japanese capitalists-Chinese capitalists; various enterprises in Manchuria; \$300,000; 1906.

Japanese and Chinese (Yingkow Water and Electric Works); Japanese capitalists-Chinese capitalists; Y.2,000,000; 1905.

Japanese and Chinese (Santai Oil Mill); Japanese capitalists-Chinese capitalists; oil manufacture in Manchuria; \$300,000; 1907.

Japanese and Chinese (Seiryu Bank); capitalists, Yasuda Bank & N.C.-Chinese capitalists; Banking in Manchuria; Y.3,000,000; 1908.

Japanese and Chinese (Mukden Horse Car Co.); capitalists, K Okura-Chinese capitalists; \$150,000; 1908.

Japanese and Chinese (Sino-Japanese); Japanese capitalists-Chinese capitalists; match factory in Changchun; \$300,000; 1907.

Japanese and Chinese (Hsintai Kungssu); Japanese capitalists-Chinese capitalists; bean cake business in Changchun; \$150,000; 1907.

British and Chinese (Kailan Mining Administration); capitalists, Kaiping Mining Administration-Lanchow Mining Administration; coal mining; £2,000,000; 1912.

British, French and Chinese (Fuchung Corporation); capitalists, Peking Syndicate-Chungyung Kungssu; mining in Honan; \$1,000,000; 1914.

French and Chinese (Fungfa Industrial Bank); capitalists, French capitalists-Chinese Government; Fcs. 45,000,000; 1913.

Japanese and Chinese (Sino-Japanese Industrial Co.); Japanese capitalists-Chinese capitalists; Y.5,000,000; 1912.

Japanese and Chinese (Shouhsing Mill); Japanese capitalists-Chinese capitalists; flour milling in Tientsin; \$250,000; 1915.

Japanese and Chinese (Yalu Lumber Co., unlimited); capitalists, Okura & Co.-Yalu Timber Co.; Y.500,000; 1915.

Japanese and Chinese (Hsunchi Kungssu); Japanese capitalists-Chinese capitalists; mining concern at Shanghai; \$2,000,000; 1914.

Japanese and Chinese (Dairen Exchange and Trust Co.); Japanese capitalists-Chinese capitalists; Y.1,000,000; 1913.

Japanese and Chinese (Mukden Trust Co.); Japanese capitalists-Chinese capitalists; \$50,000; 1916.

Japanese and Chinese (Kaiyuan Trust and Exchange Co.); Japanese capitalists-Chinese capitalists; Y.500,000; 1916.

Japanese and Chinese (Changchun Trust and Exchange Co.); Japanese capitalists-Chinese capitalists; Y.500,000; 1916.

Japanese and Chinese (China Electric Manufacturing Co.); Japanese capitalists-Chinese capitalists; Y.1,000,000; 1917.

Japanese and Chinese (Shanghai Electric Works); Japanese capitalists-Chinese capitalists; Y.100,000; 1917.

Japanese and Chinese (Yasukuwa Iron Works); capitalists, K. Yasukawa-Chinese capitalists; Y.2,500,000; 1916.

Japanese and Chinese (Kunghsing Iron Works); Japanese capitalists-Chinese capitalists; manufacturing iron tools, etc.; Y.200,000; 1917.

Japanese and Chinese (Sino-Japanese Exchange Bank); Japanese capitalists-Chinese capitalists; Y.5,000,000; 1916.

Japanese and Chinese (Chinetao Railway Co.); Japanese capitalists-Chinese capitalists; Y.1,000,000; 1918.

Chinese and French capitalists (Banque Industrielle de Chine); capital, Frs. 75,000,000; 1913.

Chinese and Japanese Trust Company (Dairen Trust Company). Unregistered; 1913.

Chinese and Japanese Industrial Company (Chung-Erh-Shih-Yeh Kungssu), Peking; capital, Y5,000,000; 1914.

Kung-Shin Iron Works. Unregistered (not registered with Central Government); 1914.

Chao Sing Flour Mill. Unregistered (not registered with Central Government); 1915.

Chinese and Japanese capitalists (Yalu Lumber Company), Changchun; \$1,000,000; 1915.

Chinese and Japanese capitalists (Fengtien Trust Company). Unregistered (not registered with Central Government); 1916.

Chinese and Japanese capitalists (Kaiyuan Trust Company). Unregistered (not registered with Central Government); 1916.

Chinese and Japanese capitalists (Changchun Trust Company). Unregistered (not registered with Central Government); 1916.

Chinese and Japanese capitalists (Anchuan Iron Works); principal works in Mentze, Island of Kushu, Japan; capital, Y 20,000,000; 1916.

Chinese and Japanese capitalists (The China Exchange Bank), Peking; capital, Y.10,000,000; 1916.

Chinese, American and Japanese capitalists (China Electric or Chung Kuo Electric Company), Shanghai; capital, \$1,000,000; 1917.

Shanghai Electric Company. Unregistered (not registered with Central Government); 1917.

Chinese and Japanese capitalists (Tsingtao Railroad Company). Unregistered (not registered with Central Government); 1918.

Chinese and Russian capitalists (The Russo-Asiatic Bank); capital Rbl. 55,000,000.

at 8 per cent. with a commission for handling the business and a 5 per cent. commission for the three-year credit on the 75 per cent. of cost.

"I submitted this not only to several of the leading railway equipment and supply companies, but to several of the largest banking interests. Without exception the railway equipment and supply people declared that it was utterly impossible to grant credit such as requested by the Chinese Railways. The banking interests, while admitting that an 8 per cent. Chinese Railway note at a 5 per cent. discount for an average of only two years was attractive, declared that they were of the opinion that such a note issue by the Chinese Railways Administration would be an investment security of the kind contemplated to be handled by the International Banking Consortium for loans in China.

"I called their attention to the fact that it was nothing but a trade credit and would be issued primarily to the railway equipment and supply companies for equipment and supplies furnished Chinese Government Railways, and, while the obligation issued by the Railways Administration was in the nature of a Chinese Government obligation, still their purchase of it would be from the equipment companies rather than from the Chinese Railway Administration, and that anyhow the International Banking Consortium was not in existence, but was merely proposed and in a tentative state. But the banking interests here took the position that even if the International Banking Consortium had not been definitely organized still they felt that before granting such a creditor buying such equipment notes they would have to submit the matter to their associates in the proposed International Banking Consortium.

"This information I was compelled to cable back to my Chinese friend, with the result that much as he desired to break away from European connections and do business with America, he was compelled to turn back to his old connections, with the result that the contract for railway equipment and supplies, which would have amounted to about thirty millions of dollars during the five-year period, was divided between Vickers, Inc., of England, and a French company, upon the following extraordinary terms: Vickers, Inc., took the railway equipment business without cash payment down and accepted notes payable in ten annual instalments at 8 per cent. with a 5 per cent. discount from par for financing the credit, and the notes so issued to Vickers, Inc., were sold to the British investing public at 98 and were largely over-subscribed at the public offerings. The French company accepted their part of the railway supply business upon fifteen years' credit to Chinese Government Railways, interest only to be paid after the first five years and the principal of the notes to be paid in ten annual instalments beginning at the end of the sixth year.

"Think of such credit as this:—Ten years from the British and fifteen years from the French to the Chinese Government Railways on the whole amount without any cash payment down, while this business was offered to and declined by our American equipment and supply men and by our American banks on a basis of 25 per cent. cash and one, two and three years for the balance.

"When this information came I passed it on to the American bankers and called their attention to the fact that while they might have had scruples against considering this business as commercial business, their French and English associates in the International Consortium had labored under no such scruples but had grabbed the business.

"Thirty millions of dollars of railway equipment and supply business was in this manner lost to American manufacturers, but the saddest part of it is that the prices being paid to the French and English manufacturers was almost double the current prices quoted for similar equipment by our car companies and supply men. In other words, as the price of the credit asked by the Chinese Railway Administration, the English and French manufacturers have not hesitated to double the prices of the equipment sold, so that the interest on the notes amounts approximately to 16 per cent. on the actual cost of the equipment, and when the notes are half paid they will have received as much as our American manufacturers would have asked and probably as much as the equipment cost them; while the remaining five instalments will be clear profit.

"This is only one single example. I can tell you a dozen other stories equally significant."

While America Dreams

China Gets Her Credit for Equipment in Europe

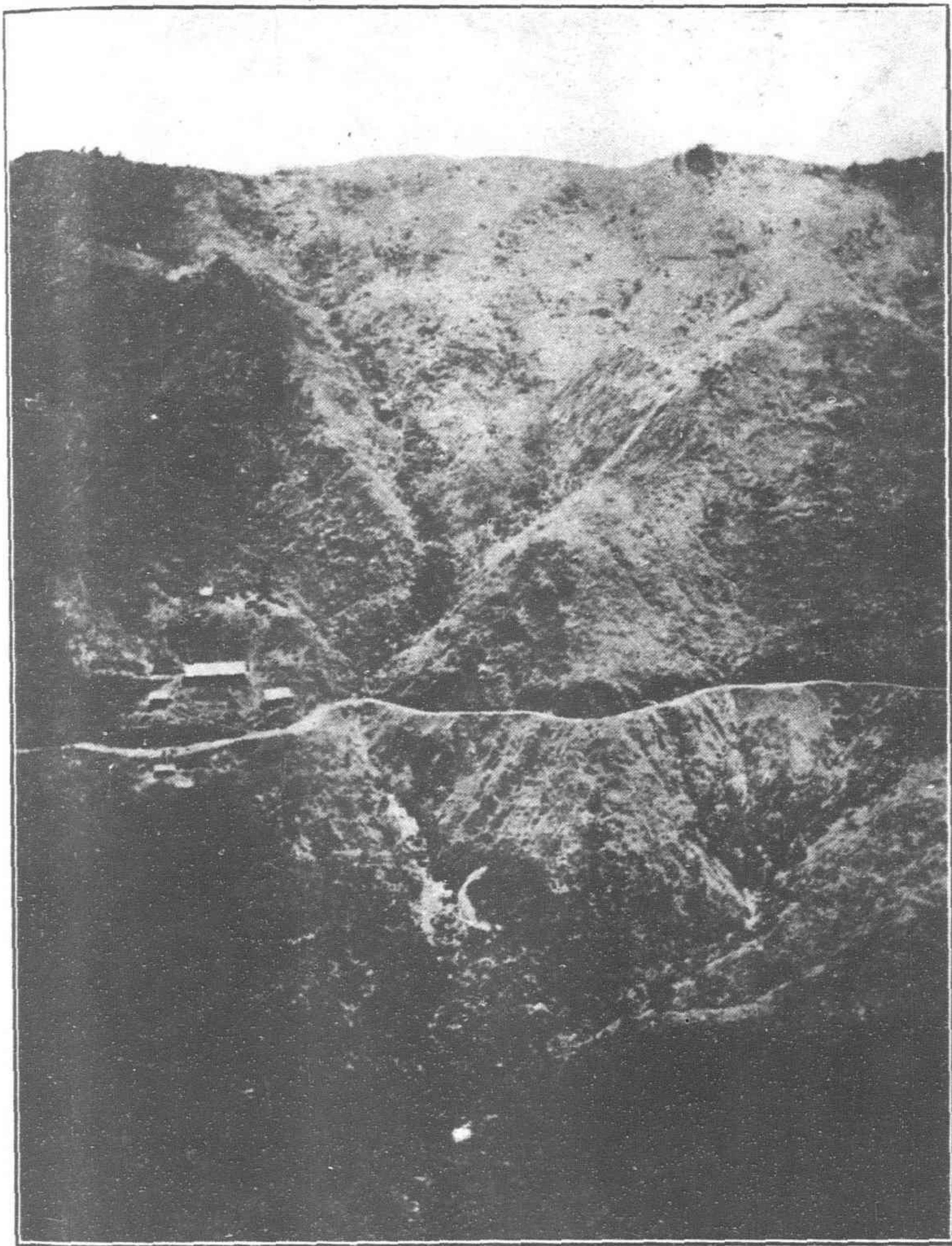
As substantiating the statement he made in an interview in "The Wall Street Journal" recently, that American bankers and business men did not know how to extend credit in foreign trade and seemingly lacked the courage to find out by experience, Guy Morrison Walker related the following concrete instance of the manner in which European manufacturers were taking highly profitable orders while Americans were thinking about it:

"In August last one of my Chinese friends, who controls the railway supply business of the Chinese Government Railways, cabled asking me to arrange, if possible, for a five-year contract to furnish railway supplies for six thousand miles of Government Railways owned by the Chinese Republic. My Chinese friend asked what proportion of cash American bankers would require and what credit on the unpaid instalments they would grant, suggesting that the Railways Administration would pay 25 per cent. cash on all such supplies and would issue Railway Administration notes in three equal annual instalments for the balance

Land Transportation in the Philippines

By Frank J. Dolan

THE task of building and operating a railroad through a tropical country that is bounded on one side by towering mountain ranges and on the other by low, fever-breeding swamps is, in itself, a gigantic undertaking. But when added impediments to its construction present themselves in the form of warlike unfriendly tribes roaming across the right of way and destroying the tracks, and a scarcity of the skilled labor so vitally essential to such a project, the proposition begins to appear foolhardy and well-nigh impossible.



Mountain Road in Albay Province

Nevertheless, these, and many more, were the obstacles which were confronted and successfully disposed of by the Manila Railway Co. (Ltd.), of London when it constructed the first railroad in the Philippine Archipelago, which was completed and placed in operation on November 24, 1892, having occupied approximately five and one half years in building.

The original line extended from Manila to Dagupan, in southern Luzon, a distance of 195.39 kilometers. The estimated cost for the project was P.4,964,400, as against an actual cost of P.7,899,000, or slightly over P.40,000 per kilometer. During the period of construction and for ten years thereafter, all material and supplies used on construction were declared exempt from the payment of customs duties, and as additional government aid the Philippine treasury guaranteed 8 per cent. interest on the investment for two years of the construction period.

The road continued to operate for a period of about five years and its success seemed to be insured, but in May, 1898, simultaneous with the destruction of the Spanish Fleet in Manila bay by Admiral Dewey, the revolutionists destroyed the road at various junctures and thereby seriously interrupted further operation.

On behalf of the Company's London interests, the English consul at Manila lodged a formal protest with the Spanish authorities against further interference with the operation of the road, but this was answered by the Spanish Governor-General to the effect that to operate the road would "aid and abet the insurgents."

The roadbed was restored and traffic resumed in August, 1898, the beginning of the American occupation, but this era of prosperity was short-lived, lasting only until the opening of hostilities between the American and Filipino forces in February of the next year.

Peace was restored early in 1900, and the railroad management set about the task of reconstructing destroyed bridges and roadbed, repairing the wrecked rolling stock and rebuilding the station buildings which had been burned along the line. Some of the supposedly "temporary" station buildings hastily erected during this period still remain to be reconstructed.

As soon as a lasting peace was assured the company entered upon an extensive program of construction, and from 1906 to 1913 extended its lines both north and south, but at the end of the latter mentioned year financial difficulties prevented the continuation of construction operations on the northern extension of the line to Baguio, which is six thousand feet above the level of Manila. The roadbed on the Baguio location was completed in some sections, and in the others approximated completion. One tunnel near Aringay was completed, including the construction of concrete portals and concrete lining throughout, while for the four other tunnels small openings were driven through. Track was actually laid for a distance of approximately twelve miles from Aringay towards Baguio. On this portion a few of the steel bridges were constructed, while steel bridges and rails for the entire line complete were on the ground ready for placing. This involved the expenditure of P.4,767,350.41, which practically crippled the financial resources of the Company and started it on a gradual decline from which it never recovered.

In the years 1915-1916 the country was in a bad economic state owing to frequent droughts which killed much of the crops and terrific typhoons in the southern part of Luzon, some of such an intensity as to blow down and render useless whole coconut groves. During this period the Railroad Company carried very little freight, and, finding itself again financially embarrassed, opened negotiations for the sale of the road to the Philippine Government, into whose hands it eventually passed on January 8, 1917, after what was probably the unluckiest operating career in the history of railroading.

During the last three years of Government ownership the railroad has been undergoing a process of semi-reconstruction, under the supervision of American railroad experts, and its present prosperity far exceeds the fondest hopes held out for it by the Government officials prominent in advocating its purchase.

In the three years immediately prior to Government ownership a loss of P.116,887.90 was shown for 1914; P.823,564.05 for 1915, and P.432,490.06 1916. During these three years the price of coal, one of the chief items of expense for the Company, ranged from P.11 to P.14 per ton.

A profit of P.816,369.39 was realized in 1917, the first year of Government ownership, although the average price of coal had risen to P.16 per ton. In 1918 the activities showed a net profit of P.248,742.89, notwithstanding an increase of P.24 in the price of coal. The profits for 1919 will be more than P.400,000.

At the present writing the system is operating over 654 miles of solid roadbed, and 36 miles more are under construction. The rolling stock includes about 1,800 freight cars with a carrying capacity ranging from 7 to 28 tons, 25 first class coaches with accommodation for 40 passengers, and 200 third class coaches of a 90 passenger capacity. The Company does not operate a second class service.

One hundred and twenty-seven engines, many of them of the powerful Compound Mallatt type, keep the service toned

to its highest point of efficiency, and the cars and engines are repaired at the Company's repair shops at Caloocan, about six miles from Manila.

Three railroad yards located in and around Manila are capable of housing the full complement of the company's rolling stock.

The Philippine Railway Company, an American-owned concern, operates two small roads in the southern islands, the largest of which is on the Island of Panay. This road connects Capiz, in the north with Iloilo, in the south, the two principal ports of the Island, and the division covers a total kilometerage of 116.1.

With the railroad operating in the principal provinces of Panay, communication and transportation between all the larger villages and barrios is possible, and the agricultural and industrial productions of the interior part of the Island are now easily transported on the railroad connecting either at Capiz or Iloilo for Manila or foreign country bound steamers.

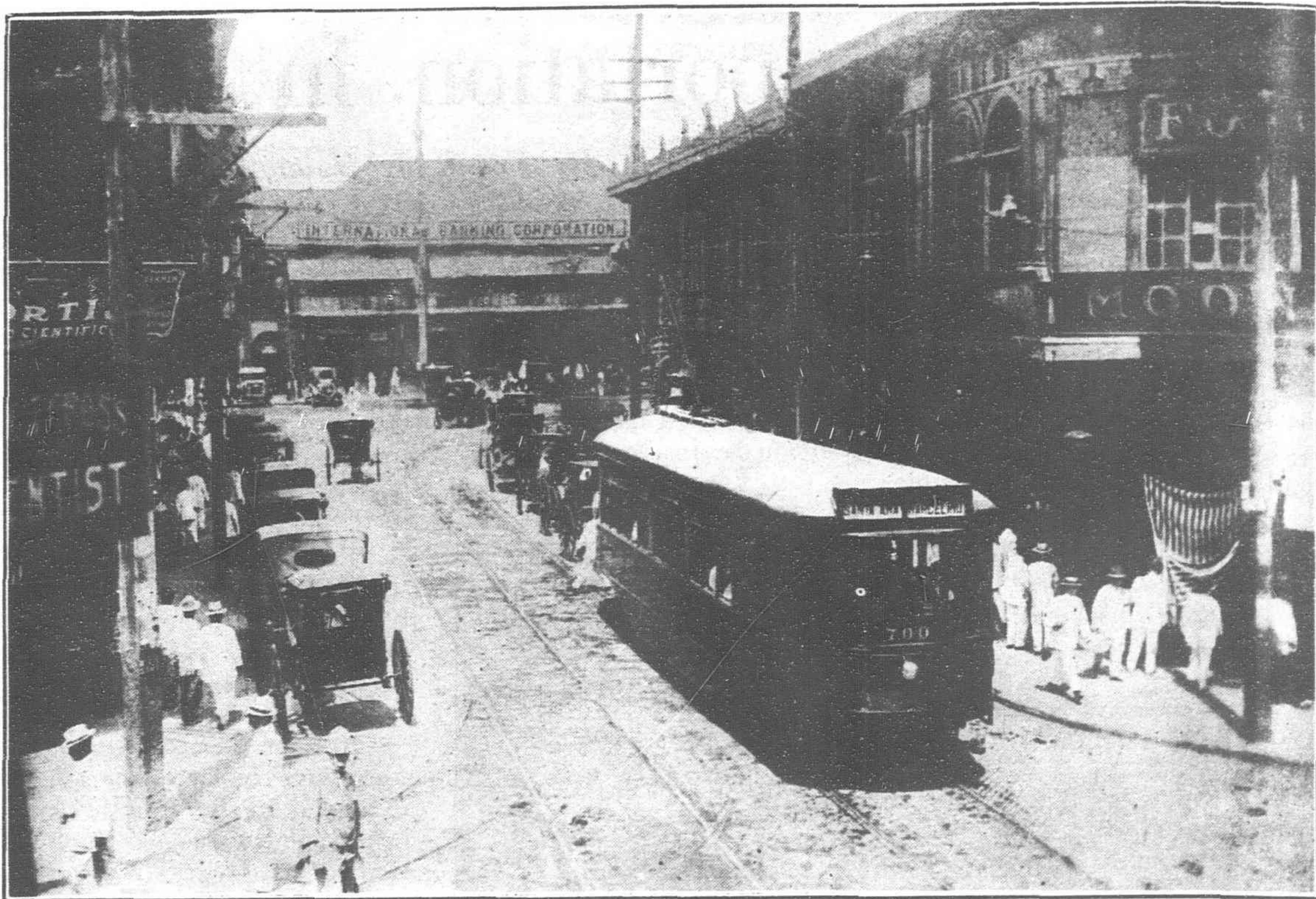
The Cebu division covers a total of 95.1 kilometers running north and south and passing through the city of Cebu. With the Iloilo and Cebu lines combined together the Philippine Railway Company records a total kilometerage of 211.7 of track in operation.

Forty-nine passenger cars and 119 freight cars, the latter totaling a capacity of 5,198 tons, were in use during 1918. With this limited number of cars the Company transported 1,551,301 passengers and 96,614 tons of freight; the former netted the Company a total sum of P.604,946.82 and the latter P.293,728.01.

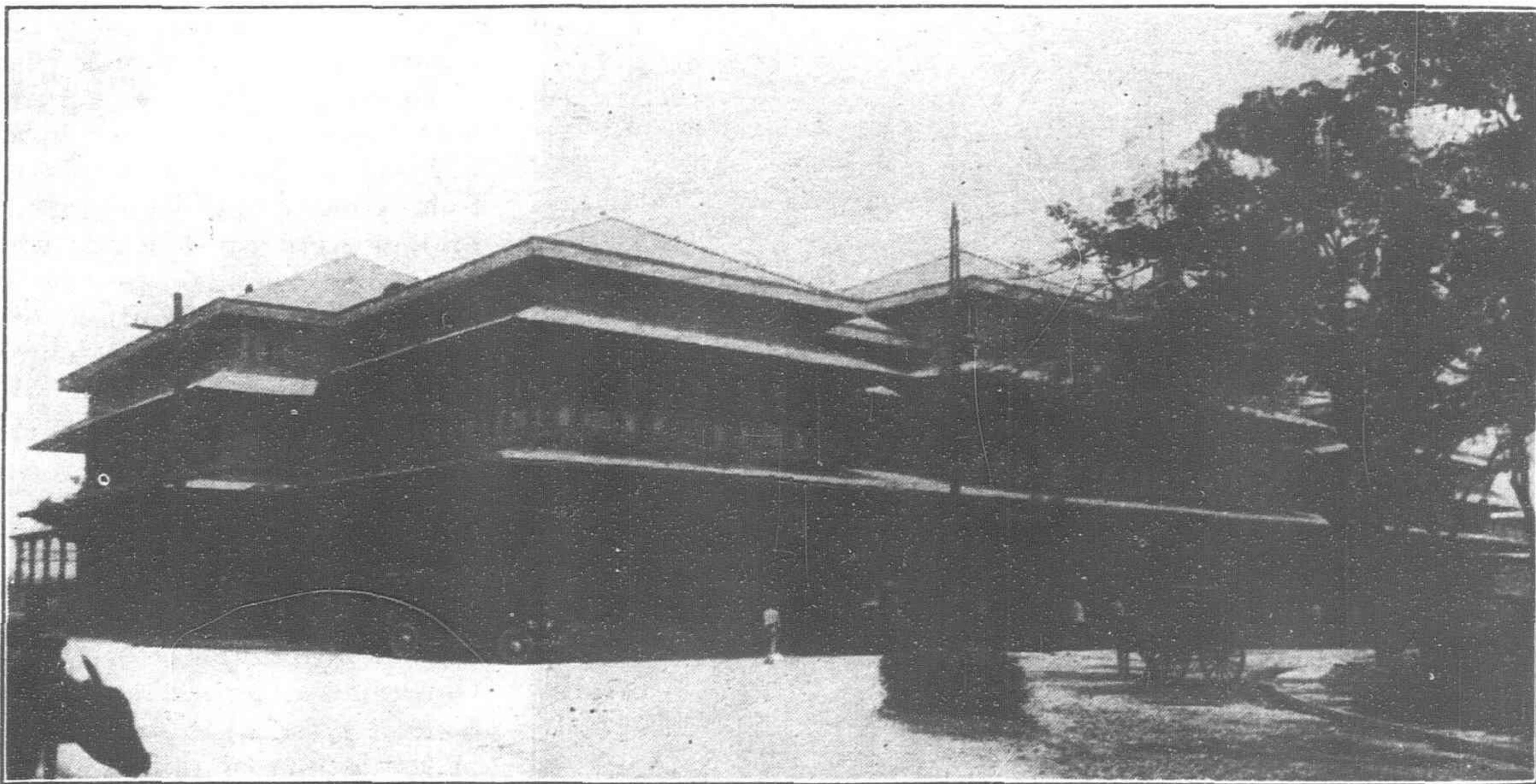
Owing to the improvement and maintenance of the railway in the principal islands of the archipelago, commercial, industrial and agricultural business has greatly improved. Negotiations now are in progress looking to government ownership of the Philippine Railway system.

The motor truck system of feeding the railroads in the agricultural districts has contributed in a large degree to the present era of prosperity. Many of the most productive plantations are situated miles from the railroad, and depend wholly upon truck trains in transporting the products to the railroad.

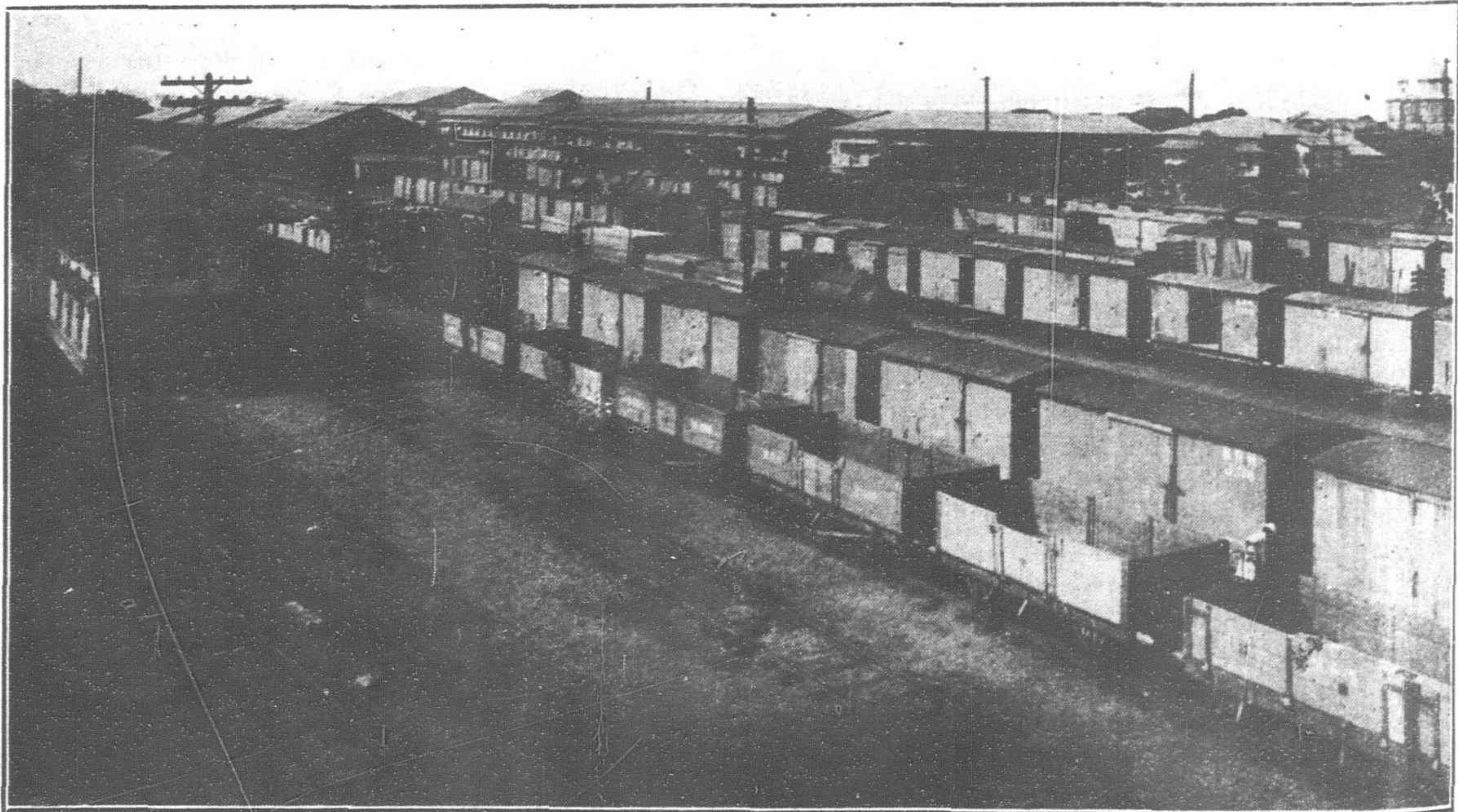
In June 1919, 973 motor trucks with a carrying capacity



City Traffic Scene, Manila



Pondo Station, Manila



Freight Yards, Manila

of 7,634 tons were operating in the Philippines, together with 5,612 pleasure cars.

Roads, as the principal factor in land transportation, is receiving the greatest attention of the Government. Improvement, construction and extension of good roads all over the Islands are being undertaken in order to facilitate better means of transportation. As a result, there are now, according to the latest report of the Bureau of Public Works:—

4030.2	Kilos.	of 1st class road.
2015.8	„ „	2nd „ „
3128.7	„ „	3rd „ „

and 9234.7 „ „ Total roads.

In each province good roads are maintained chiefly between the capital and the adjoining towns or places of commercial importance in order to afford quicker means of communication and transportation.



Train Entering Paco Station, Manila

“Little Hsu” and Mongolia

General Hsu Shu-cheng, High Commissioner for the North Western Frontier and Comptroller General for the Reorganization of Outer Mongolia, to bring about the desired regeneration of this vast territory feelingly urges the following:—The increase of population, the development of the natural resources of Mongolia, systematic education for the people, a revival of the Buddhist religion, a “benevolent administration,” the development of fundamental industries, the breeding of livestock, and the promotion of trade. He says in part: “The population of Mongolia has been decreasing steadily since the Yuan and Ming Dynasties and if means are not devised to counteract this and increase the population, I fear that in the course of a hundred years Mongolia will be more or less uninhabited. He thinks that the extinction of such a race is more than national pride can tolerate. We think there is little need for his worries concerning Chinese propagation, the most simple of living conditions being made equal.

“Mongolia is rich in timber and minerals; but both forests and mines are undeveloped. A tremendous source of wealth for China is lying there waiting—for perhaps the ‘Benevolent Administration’ to develop

“The geographical position of Mongolia makes education difficult. As in most inland places in the East the people are illiterate. The books in the Mongolian language are few, consequently the views of the people are narrow.

“The Buddhist religion may do as well as any other for the needs of Mongolia. It has many fine tenets. Mankind has not yet arrived at the place where an abstract religion can supply spiritual craving. Until such time, one personal religion may be as good as another for the working out of a nation’s destiny.

“So far as the ‘Yellow Faith’ (that section of Buddhism worshipped in Mongolia) is concerned the Mongolians may do well to return to it with zeal for—‘On examining into the question it will be seen that the Yellow Faith is the common bond which holds the people together.’

“The development of fundamental industries in Mongolia, the breeding of livestock and the promotion of trade are interdependent.

“To develop the fundamental industries means the production of necessities, for example food-stuffs and clothing. The

Mongolian people eat beef and mutton and wear woollen clothing.

“The country can produce rice, wheat and tea; the cultivation of which constitutes the fundamental industry of an agricultural people. The exchange of these articles form the basis of trade.”

General Hsu Shu-cheng in a spirit of splendid camaraderie has said:—“I herewith sincerely request my brethren, no matter whether you be priest, soldier, merchant or official to submit to me, without delay, any views you may have to express for consideration.”

War Memorial for Shanghai

It has been finally decided by the Shanghai War Volunteer Memorial Committee that a Cenotaph, or other suitable memorial, be erected on the Bund at the end of Avenue Edward VII, on the site originally selected by the Joint Commission appointed by the Municipal Councils of the French and Foreign Settlement. Other sites were suggested, but the Committee, after having given the matter full consideration, came to the conclusion that the site first chosen is most in keeping with the purpose and sentiment of the memorial. Mr. R. C. Turner, Mr. S. J. Halse, and Mr. H. Boissezon undertook to frame conditions which shall govern the competition, open to Shanghai architects, for the memorial design, and they will act as assessors. First, second, and third prizes of Tls. 750, Tls. 500 and Tls. 250 respectively are offered, and the competition will close on April 15. The designers are limited to a cost of Tls. 25,000 for the Memorial.

Various suggestions for an additional memorial of some practical nature were discussed by the Committee, consideration being chiefly given to proposals for the establishment of a Commercial Museum. It was found that the Shanghai General Chamber of Commerce and the Chinese Chamber of Commerce were disinclined to favor this scheme, and as without their support little success could be hoped for, the proposal has been abandoned. The matter will remain in abeyance until the subscription list has been closed. Should funds then permit, after the cost of the Cenotaph has been met, the question of some memorial of utilitarian character will be again considered by the Committee.

Policy and Finance in China

By Sir Charles Addis, Manager in London of the Hongkong and Shanghai Banking Corporation

THE opening up of undeveloped resources in foreign countries raises problems much wider than that of bank organization. In this form of trade more than in any other, Governments tend to intervene and industry blends with politics. In particular this has happened in the Far East, where China has offered an immense field for the concentration and development of international politico-finance.

For a general survey of the movement we need not go further back than the early nineties. In 1894 China lay at the mercy of Japan, but the latter had to forego the fruits of victory by the veto imposed, by a condominium of the Powers, Russia, France, and Germany, on her territorial acquisitions in Manchuria. The position of England, who stood aloof, neither supporting Japan against the Powers nor joining the Powers in despoiling Japan, was not an enviable one. The star of France and Russia at the Court of Peking was in the ascendant. A further blow to the prestige of Great Britain, so it was thought, was the loan concluded by France with China in the following year for 400,000,000 francs. As a counter-stroke to that loan, and in order to retrieve her prestige, England entered into a pact with Germany for an equal share in Chinese Government finance, the result of which was seen in the two Anglo-German loans, issued in 1896 and 1898, for an aggregate sum of £32,000,000.

The point to be emphasized is that these were purely financial loans. They carried with them no direct economic advantage, nor can they be said to have benefited, except partially and indirectly, the industries of the lending countries. The transaction, which involved the diversion of a certain amount of domestic capital and its transfer to a foreign country, cannot be justified upon the grounds of economic advantage; it must stand or fall by the value attached to the political prestige which it was the purpose of the loan to establish, and the extent to which it succeeded in achieving that object. In the end the results were found to be illusory. No evidence has been adduced of any gain in prestige to the countries making financial loans compared with those who abstained.

It was felt that something more tangible than prestige was required, and in 1898 we find Germany established at Kiaochow, Russia in Dalny, France at Kuang-chowwan, and Great Britain in Weihaiwei. China appeared to be breaking up, and each of the Powers was anxious to secure a reversion of the fragments for its own nationals. The Anglo-German agreement was extended with a view to delimit the interests of these two Powers in China, and England claimed the Yangtze Valley as her share. To the policy of prestige succeeded the policy of "spheres of interest." It is a difficult policy to maintain, this exclusive right of one country to exploit the industrial resources of a portion of another country, unless you are prepared to fight for it, and for that, when challenged, it was found the Powers had no stomach. Germany promptly repudiated England's claim to the Yangtze Valley, and it was certain that English public opinion would not support the Government of the day in maintaining the claim by force of arms. "Spheres of interest" gradually shaded off into "spheres of influence," that is, the preferential right of exploitation on terms as favourable as may be offered by others, and the battle for territory was succeeded by the battle for concessions to build railways, the bulk of which were secured by Great Britain.

The long period of cheap money which culminated in 1898 was favorable to the new policy of economic advantage, and, had it not been arrested by the Boer War in 1899, the history of China during the last two decades might have had to be rewritten. It is at least arguable that if the railway programme had been carried out the general improvement in the condition

of the people which might have been expected to accompany an extension of the means of communication would have gone far either to allay the popular discontent, which was the cause of the revolution, or to strengthen the hands of the Government in quelling it.

Unfortunately the Powers found it easier to exact concessions than to fulfil them. It was not until 1904 that the construction of the first of the railway concessions obtained in 1898 was begun, and to this day the bulk of them remain a dead letter. Still, so far as it was carried out the results of the railway policy were favorable both to the lending and to the borrowing countries. The labor and capital of each were stimulated. The defect of the policy was that it went too far and too fast. Obsessed by their political aims the Governments were reckless of finance, and in their anxiety to peg out claims for posterity the Powers entered with light heart into contracts without regard to the ability of their nations to carry them out within a reasonable time. On these terms it was plain that any Government, however weak its economic position might be, could take a hand in the game. The Chinese were only too ready to play off one Government against another, and in an Oriental country the powers for obstruction, even of the weakest, politically were found to be formidable. It was always possible by offering better terms, even if the last thing you desired was that they should be accepted, to put a spoke in your neighbor's wheel, and then to make the offer of a withdrawal of your opposition a condition for securing a share of the enterprise for yourself. International competition ran riot. Politics and finance proved a dangerous admixture in an Oriental country with a weak and unstable Government. It was doubly damned, for it inevitably led on the one hand to political corruption and on the other to wasteful and unprofitable finance. The position became intolerable and a remedy had to be found.

The natural remedy for the evils of excessive competition is co-operation. In 1910 Great Britain, France, Germany, and the United States bound themselves to seek no exclusive advantage in China and to share on equal terms any concessions which each of them might obtain. The Four-Power Consortium, as it was called, was later increased to the Six Power Consortium by the inclusion of Russia and Japan.

It is significant of this change of international policy, it might perhaps better be said of international attitude, that the first task the Six-Power Consortium took in hand was no longer to acquire profitable concessions for themselves but to redress two of the most urgent needs of China. It is not too much to say that the misery of the populace in China may be ascribed in large measure to the corruption of the administration and the chaos in the currency. The object of the Six-Power loan agreement for £60,000,000 was the reform of the one and the rehabilitation of the other, by the completion of the loan, the first instalment of which, for £25,000,000, was issued by the Five-Power Group in 1913. The Americans did not participate in this issue, but there is reason to believe that their withdrawal was only temporary.

It is too soon yet to speak of the results of the new policy, the practical application of which has been interrupted by the outbreak of the European war, but it would seem to be in the line of the general trend of public opinion in favor of setting up some sort of international organization after the war for reducing to harmony the conflict of national ideals. The banking and industrial groups which compose the Consortium have been the subject of some acrid criticism, but in this respect it may be claimed for them that they were in advance of the Governments in pointing the way to a higher conception of international politics.

The policy of foreign industrial loans has been criticized on the ground that under the dominance of British free trade ideas the borrower is left free to purchase his material in the open market, and that, unless a stipulation is made that the proceeds of the loan shall be expended in this country, there is a danger of the orders going to other countries whose manufactures would in this way be benefited at the expense of our own. Experience, however, has shown this fear to be illusory. To demand such a stipulation is to court suspicion. If granted at all it will be granted unwillingly or hedged about with such qualifications as to make the concession not worth the having. It is one of those cases in which, as the practical man knows, the best way to obtain what you want is *not* to ask for it. In practice trade follows the loan and orders follow the engineer. Place an engineer from the Clyde at the head of any industrial undertaking and you may safely dispense with any stipulation as to the provenance of material. Invite tenders from the wide world; frame your specifications in such a way as to suit the engineering standards of different countries; it will be of no avail. In the end you will find, no one can quite say how or why, that your railway, or your bridge, or whatever the undertaking may be, is become as Scotch as the engineer himself. How all this comes about nobody knows, except perhaps the engineer, and he won't tell. But, broadly, the fact is as we have stated it. Apparently free trade, like wisdom, is justified of her children.

The real objection to these loans is not industrial but political. Undoubtedly the original concessions for railways in China yielded a profit to those who undertook them, but the blending of politics with finance proved fatal to its continuance. The rivalries and jealousies of the Powers resulted in an international competition by which the profits of the undertakers were reduced to the vanishing point, and, what is more important, the productive power of the lending country was impaired by the diversion for political ends of the national capital from more advantageous employment at home to less advantageous employment abroad. We must not ask of human nature, still less of a Government, more than it has to give. It is not always, perhaps not often, possible to separate politics from finance, but it is clear that their interests are not necessarily identical, and the assumption is that they are better left to operate independently. The burden of proof lies with those who propose any departure from the general rule. The economic loss involved in the use of finance as a political instrument must in every case be justified by a demonstration of a compensatory national advantage.

The last phase of international finance, namely, the substitution of co-operation for competition by the formation of a Consortium of national groups, is open to the criticism that it reduces nations of varying degrees of economic strength to a dead level of uniformity; that it confers, to the detriment of its competitors, a quasi-monopoly on the representative group by investing it with the exclusive support of its Government; that since a joint tender for any international contract must be at a price which will suit the least efficient of the Consortium groups, the tendency is to restrict freedom of competition and to reduce the national revenue of the more efficient countries by raising the unit cost of production.

To these objections, which are perfectly valid, it may be urged that half a loaf is better than no bread. It is at least open to question whether the absolute supremacy of Great Britain in industry and finance can be maintained in face of the growing competition of countries with larger natural resources and more rapidly increasing numbers, such as the United States with more than twice her population, and Germany with half as much again. And if it be true that the effect of unbridled political competition in exploiting undeveloped countries is to demoralise both lender and borrower, then it may be to our interest to accept an equal share of the advantages on reasonable terms with other countries rather than to enter into a sort of Dutch uaction to outbid rivals in the hope of converting a present loss into a future gain by ultimately securing the share we consider proportionate to our merits.

As for the quasi-monopoly conferred on a particular group by the exclusive support of its Government, you cannot in the

nature of things expect to enjoy the benefits of an international association without some restriction on the free and independent action of the national units of which it is composed. The group must be a unit representative of the nation if the groups of the other nations are to co-operate with it on equal terms. There would be no object in the Powers forming a partnership for the purpose of restricting competition among themselves, if it were left open to any one of them to form a second national group untrammelled by the conditions imposed upon the collective action of the Consortium and free to compete with it. No group would be willing to undertake the expense of a preliminary investigation of any great industrial enterprise in the foreign field, the cost of surveys, the maintenance of a staff of experts, etc., if it were liable to be deprived at the last moment of the reward of its labors by the intervention of some competitor, foreign or native, who, by the very fact that he has contributed nothing to the initial expense, is in a position to secure the contract by offering more favorable terms than the original undertakers. Under a protection *régime* the Continental group is enabled to provide against internal competition by means of trusts and cartels, and against external competition by means of a tariff. In free trade England the difficulties are not so easily overcome. The group are exposed not only to the competition of foreigners but to the competition of their own countrymen, and, unless they can secure the exclusive support of the Government, they are not in a position to join with other groups in a joint industrial undertaking. Some degree of national monopoly would appear to be inseparable from any form of international industrial or financial association. There is just this to be said by way of mitigation, that, as it is manifestly impossible to comprehend in one Consortium all the industrial nations of the world, the quasi-monopoly, such as it is, is likely to be tempered by a good deal of international competition from those outside the pale.

There are other and more serious dangers to be feared from within, in the graver issues involved in the combination of finance and politics of which a Consortium is compounded. The balance between the two may be so unevenly adjusted as to afford the groups an opportunity of bending the policy of the Powers to the prosecution of the selfish and noxious aims of a certain type of cosmopolitan finance. Or it may be that one of the Powers may be able to deflect the policy of the Consortium in favor of its own national interest by inducing it to grant a preference to its friends or to inflict a boycott on its enemies.

The reality of these dangers is undeniable. They can only be kept in check by a rigid insistence on the transactions of each group being exposed to the light of day and subjected to a persistent and searching public criticism in the country of its origin.

It passes the wit of a man to devise a scheme which shall be invulnerable to criticism at all points, but upon the whole, in spite of its admitted defects, we are disposed to believe that, within the domain of Government-assisted finance, the substitution of international co-operation for international competition will be found as a policy the least open to objection. It is the only means left to us for keeping the door open to trade in undeveloped countries, and, in view of the vital importance of that policy to a free trade country, the argument in the case of Great Britain would appear to be conclusive were the difficulties in the way of international co-operation ten times greater than they are. It is a policy in accord with the spirit of the times as embodied in the project of a League of Nations, a project which it is manifest can never be brought to a successful issue if it fails to take account of the urgent need of reducing to harmony the economic as well as the political discords of the democratic nations. Political peace! Industrial peace! It is the dream of a war-worn world. If it is not to remain a dream, if it is ever to be translated into reality, it can only be effected in international Government finance through the medium of representative national groups working in concert for a common end under the supervision of their Governments and, in the domain of international trade proper, through the complete freedom of the individuals of different countries to exchange their commodities without let or hindrance on the part of the State.—“The International Review.”

The Pacific Cable Question

The discussion which has been proceeding for some time on the subject of a new cable across the Pacific from the United States continues unabated, and has received a fillip by the recent break in the Pacific Commercial Company's cable. That a new cable will be laid is certain, but at the moment no decision as to the route has been arrived at. Some interesting information on the subject was given recently in an open letter by George G. Ward, Vice-President and General Manager of the Commercial Pacific Cable Company, to Senator Wesley S. Jones, Chairman of the Committee on Commerce, U. S. Senate, Washington, D.C. Mr. Ward writes:

"Now, as to laying another Pacific Cable. Our present cable line runs from San Francisco to Honolulu, Midway, Guam, Manila, and Shanghai, China, with a spur line from Guam to Japan. That cable line is more than ample to provide rapid service with the Philippines and China, if it could be relieved of the larger volume of traffic with Japan. The route along the line of the present cable has been carefully surveyed—and this is valuable information. A second cable from San Francisco to Honolulu and Midway would merely be supplemental and not initial, which would be an important factor in annual station expenses as well as office installation. San Francisco is the largest land telegraph terminus on the Western Coast, with direct land-wire facilities to important centres in the United States, which gives it a great advantage over any other landing point in serving public demands. When we laid our present cable in 1902, the Postal Telegraph Company, our land-line system in the United States, strung a special copper wire from San Francisco to New York exclusively for the rapid transmission of Pacific Cable traffic. This wire has since been supplemented by additional landline facilities between the East and the West, terminating at San Francisco. Taking all these very important facts into consideration, we intend to lay our new cable from San Francisco to Honolulu and thence to Midway, thus duplicating our present cables as far as that point, and from Midway we have in mind laying a cable direct to Tokio, Japan, or by way of Guam. Such a cable would provide an excellent and rapid service with Japan, which would be an advantage to the large number of American merchants trading with that country. This will allow the present cable to be used entirely for Philippines and China traffic, for which it will be more than ample.

"When we laid our present cable in 1906 we desired to extend it to the mainland of Japan direct, instead of landing it at Bonin, but the Japanese Government preferred to have us stop at Bonin and lay a cable themselves from Tokio to Bonin to meet us. We believe that if we could secure the right to land the new cable in Japan and operate it ourselves with our own staff and under our own supervision, we could improve the quality of service obtained under present conditions. Or instead of laying a cable from Midway to Japan direct we could duplicate our present cable from Midway to Guam, thus providing one cable line from San Francisco to Guam and thence to Japan by way of Bonin, and another cable line from San Francisco to Guam and thence to Manila and China.

"There has been discussion of a cable route via the Aleutian Islands, Alaska, and this proposal has received some favorable mention from the Department of Commerce and others. The best judgment of expert cable engineers is that the Northern route is unfavorable, both because of climatic and actual operating

conditions. The ocean bed over that route is bad. The tides around the islands are rapid and uncertain, and the islands themselves are volcanic. The shocks of earthquake and volcanic phenomena are of frequent occurrence and disastrous to cable working. The whole region is fog bound for months in the year, and as a consequence repairs in the cables during certain portions of the year and at long stretches at a time would be impossible. The numerous relays which would be necessary would slow down the speed of the cable and be productive of errors. The route which we propose to take has been tried to Midway by our present Pacific Cable, which has been laid for 16 years, and in all that time there have only been four interruptions in the cable between Guam, Midway and San Francisco. The greater number of interruptions have been west of Guam, namely, between Guam and Shanghai, principally in the San Barnadino Straits, and this condition we are now remedying by diverting the cable away from those dangerous straits, although that improvement is at present held up by delays of the Philippines Government in granting a permit to use the highway across Luzon. There can be no question as to the choice of routes. The Northern route would be an absolute failure in so far as maintaining economical direct and prompt cable service between the Far East and the United States is concerned.

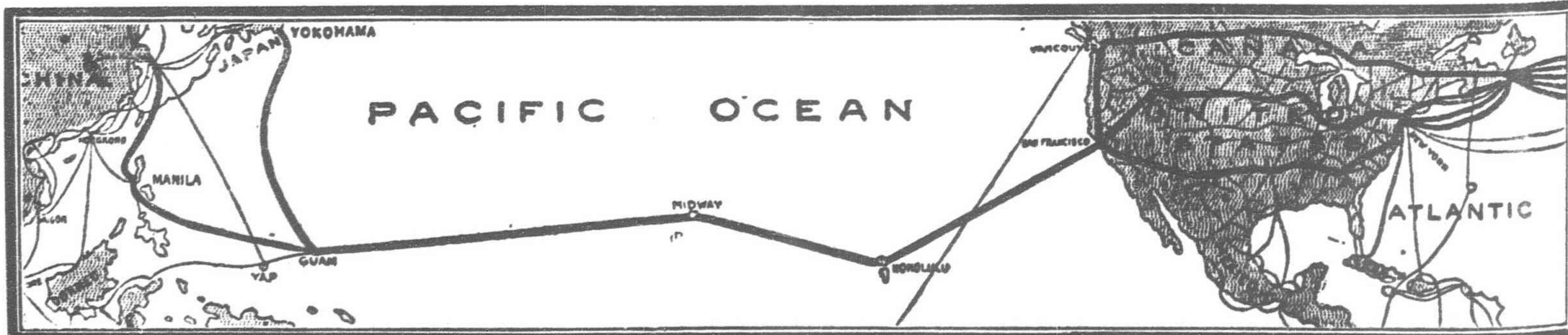
High Silver Hurts Trade with China

The Foreign Trade Bureau of the American Express Co., in a statement prepared for American importers and exporters, declares that, from the viewpoint of future trade development with China, the continued high value of silver had a certain menace. Quoting from Consul-General Anderson of Hongkong to the effect that, unless exchange falls, China must sell its products for about half what it has heretofore received in silver—or must expect to see its trade go to other countries producing goods on a gold basis, the bureau goes on to say that China's value to United States as an export market depends on her buying power.

Her buying power, it is pointed out, in turn, depends largely on what China can sell abroad. As the high price of silver acts to restrict the volume of Chinese exports, by just that much will China's value as a market for American goods be impaired, because of the consequent restriction of her wealth and purchasing power.

Before the war China's import trade was considerably greater than her export business. Now the tide has swung the other way, and China's exports far exceed her imports. As a result, large remittances of silver must constantly be made to China in payment of these purchases, and naturally the greater part of these silver remittances go from the United States, which has the greatest silver market.

Chinese silver exporters expect and demand payment in silver for their products. Therefore, a shipment of silk valued at 100,000 Hongkong silver dollars, which three years ago would have cost an American importer \$50,000, will now cost him \$100,000, this increase being due solely to the rise in the price of silver. This takes no account of the increased cost of production in China itself, which would make a silk shipment worth 100,000 Hongkong dollars, three years ago, worth many more now. In spite of the fact that Americans are now paying more than twice as much for Chinese articles as formerly, our imports of silks, etc., have fallen off very little.



The Existing Commercial Pacific Cable Across the Pacific

China's Great North-West

IV.—Historic Ninghsia and Camels

By Rodney Gilbert

NINGHSIA is one of those frontier trading towns in which the traveller never seems to encounter a native. Inn-keepers, shop-keepers, restaurant proprietors, soldiers, police and officials are all outsiders, and where the natives keep themselves it is difficult to determine. The city lies in absolutely flat country intersected by many irrigation ditches and is well cultivated in rice and hemp. It is about forty *li* from the Yellow River and between fifty and sixty *li* from the Alashan Moun-



MA FU-HSIANG
Ninghsia Defense Commissioner

tains. As it stands it is not an ancient place, but it is so dilapidated and ruins are so numerous in the big spaces which were swept bare during the Tung Chih Moslem rebellion that it has an ancient aspect. The city has one exceedingly busy street, wide and dusty, which does not boast a single first-class shop but which is always crowded with stands and with goods heaped up upon the ground, the property of itinerant traders. A massive drum tower upon which have been erected a group of small temples dedicated to the warden of the under-world is the only imposing building in the city. The greater part of the space between the walls is taken up with big stretches of bare ground crusted with white alkali and dotted with crumbling ruins or with duck ponds which become a wilderness of weeds in the late summer and autumn. All the temples and *yaméns* are dilapidated with the exception of the group of buildings which General Ma Fu-hsiang, Defence Commissioner, has renovated and uses as his residence and offices. In its palmier days Ninghsia, like Peking and Hsianfu, was the residence of two *hsien* magistrates. For several generations it has ceased to deserve such distinctions, however, and one has been removed to the Manchu city formerly occupied by a Manchu garrison, which lies fifteen *li* west of the trading town.

One would not suspect in travelling through northern Kansu that it is a volcanic country, but Chinese history records many violent earthquakes in the Ninghsia district which have been terribly destructive of property and life, while several days' journey south of Ninghsia along the Yellow River, the Chinese

speak of smoking mountains from which they see fire issue and from which there are occasional slight eruptions. Ninghsia has been built on several sites and seems to have been removed from place to place after destructive earthquakes. The last violent shock is said to have destroyed the city in the 26th year of Chien Lung. Thanks to much irrigation and the alkaline quality of the soil, stone monuments seem to rot away like wood, and there are few written records of the ancient history of the Kingdom of Hsia in existence. On the occasion of the arrival of two missionaries from Lanchowfu during my stay in Ninghsia, we visited a little room in a ruined tower and found a group of venerable scholars rewriting the history of the Ninghsia district from official records. They told us that so far as they knew, there was not a single monument in all the territory inscribed with the peculiar characters which the Kings of Hsia invented for their people several centuries before the rise of the Mongols, and which were in common use until Chinghiz Khan obliterated the kingdom and did away with its independence forever. It is sometimes said that one of the scripts which are preserved in the archway at Chuyangkuan, in the Nankow Pass, north of Peking, is that of Hsia.

The people are not of Chinese origin but were originally a Tibetan border tribe of the race described by medieval travellers as Tangut, who were given permission by the Tang dynasty emperor Tai Sung to settle in the Ninghsia district. The family name of the emperors of the Tang dynasty was Li, and in return for services rendered, it was the fashion among some of the Tang rulers to adopt tribal chieftans of the various barbarians into their family and to bestow upon them the family name of Li. During certain insurrections the Chiefs of Hsia were of some service to the Imperial House, and together with the clan chieftans of some Turkish tribes in the Kueihuacheng district, they were allowed to adopt the family name Li. From the time of the fall of the Tang dynasty, the Hsia Kingdom became virtually independent and resisted all attempts of the Sung, the Liao and the Chin emperors to make northern Kansu a part of their Imperial domains. For a time they paid tribute to both the Liao Tartars and the Chinese, but very early in the 11th century they became so important, having by this time driven the Ouigur out of North-western Kansu, and having invaded northern Shensi and Shansi, that the Chinese were glad to purchase their friendship with large annual presents of silver and silk. The system of writing which has been quite a puzzle to philologists was adopted in the first half of the 11th century and was probably founded upon that in use among the Khitan, who had presumably built their script upon a Chinese model. A key to the mysteries of the language, together with some manuscripts, were discovered by General Kozlov in Chinese Turkestan, and as one of the inscriptions in the Nankow Pass is simply the phonetic rendering of the Sanscrit text in Hsia characters, it has been of assistance in learning the pronunciation of these ideographs. Professor Berthold Laufer after some study of the few materials available, has determined to his own satisfaction that the language belongs to the Tibetan-Burmese group and is rather closely related to Lolo. Several residents of Ninghsia told me at different times that in the hills on both sides of the river there still reside some aboriginal people who speak a non-Chinese language, but all the mountaineers whom I later encountered spoke nothing but rustic Chinese, with a smattering of Mongol which they had acquired from their neighbors in the Alashan.

Marco Polo visited Ninghsia and undoubtedly found it sixty *li* to the west at the foot of the hills and at the mouth of the pass through which the present road from Ninghsia to the home of the Prince of the Alashan runs. He calls it Egrigaia, and mentions that a cloth of camels-hair was manufactured there

which was highly esteemed as an article of commerce. At the time of his visit, the place was probably much Mongolized, for Chinghiz Khan had sacked it twice and had occupied the pass with a large army for five months at one time. The Ordos Mongols still refer to Ninghsia as Irge, which may be a modification of the name which Marco Polo heard. He also mentions the Alashan under the disguise of Calachan. While the Alashan Mountains and district are colloquially pronounced as we render them in English, the literary Chinese rendering is Holanshan. This is probably similar to some original which began with a Kh, a sound which the Chinese always render as h and which Polo always hears as k.

As I have already said, one sees very little of the native of the Ninghsia district while travelling through. Within the city the merchants and inn-keepers are nearly all Shansi men, while outside the city the more enterprising farmers, boatmen and camel owners all seem to be Mohammedans. The Ninghsia Mohammedans, nearly all travellers agree, are an extremely likable class of people, honest, good-hearted and peacefully inclined and quite willing to live and work on good terms with their Chinese neighbors. Their kindred a little further south and east of the Yellow River do not have nearly so good a reputation and from among them were recruited the majority of Tung Fu-hsiang's followers who gave the strongest support to the Boxers in Peking in their attack upon the Legations in 1900.

Two days' journey into this little travelled country is the home of Tung Fu-hsiang himself. This famous commander who went unpunished after his act of participation in the Boxer movement, retired to his home in 1900 and died there six years later. His wife, who is a Turki of Kashgar, is still living and still maintains a strong military following, while one of his sons, a man of doubtful repute, is a minor military official at Kuyuan. After the Boxer trouble another famous promoter of that movement, who was almost entirely responsible for bringing the Imperial Manchu Court in league with the Boxers, Prince Tuan, also came into the Ninghsia district and was sheltered and protected by the Prince of the Alashan, Wang Yeh-fu. General Ma Fu-hsiang, Defence Commissioner at Ninghsia, who is now second to the military Governor of the Province in rank, is himself a Mohammedan of a very liberal turn of mind and with an excellent reputation for maintaining a just and benevolent administration. Unlike most Mohammedan military leaders of Western China, Ma Fu-hsiang has a good Chinese education and has travelled throughout the Eastern provinces. His elder brother was a cavalry commander in Tung Fu-hsiang's army, and as a boy Ma Fu-hsiang came to the Court in Peking and became a marked favorite of the Empress Dowager. He afterwards accompanied her to Hsianfu when the Court took flight and owed some of his subsequent advancement to the good impression which he made during this journey. General Ma is a native of the strong Mohammedan centre of Hochow, two days' journey southwest of Lanchowfu, where for some generations the favorite subject of gossip among the Moslems has been that of rebellion against the Chinese and the slaughter of the infidel. General Ma is the senior member of a new Mohammedan school in Kansu which discountenances all this talk of rebellion and slaughter and which seeks to advance Mohammedan interests by educating their people up to participation in Chinese official matters so that their share in the government in strong Mohammedan communities will be greater and so that they will not out of religious fanaticism confine their studies to the Arabic Koran and remain illiterate so far as their ability to do Chinese commercial or official business is concerned in Chinese communities.

My business in Kansu had to do with the war and when I arrived in Ninghsia on November 1st, I looked forward to a long stay. I had no reason to expect that a cablegram would arrive on the 12th which would rob me of my principal excuse for travelling in West China. I made up my mind upon my arrival, therefore, to dispose of my camels sooner or later, and, since I could not promise steady employment to my retainer Ting he was in haste to return to his home to join his brother in the direction of a wool caravan which was scheduled to return to Paotou. I let him go, therefore, with some regret at the time and with much deeper regret later on.

Ninghsia is a city of miserable inns, and on the day of my arrival, thinking that I deserved some comfort in compensation for a wintry trip across the Ordos, I visited a number of tumble-down taverns and refused to stay in any of them until at last in the horse market I met a Chinese who volunteered the information that another foreigner, an Englishman, an agent of the Jen Chi Yang Hang, interested in wool buying, was living in the Kuang Mao Chan. I, therefore, went to this inn which proved later to be the only decent shelter afforded the wayfarer in Ninghsia, found myself a room, borrowed a good sized tub, and was in the act of removing several weeks' accumulation of Mongolian dust and alkali, from my person, when Mr. Candlin, of Forbes & Co., whom I had once met in Peking, and whom I knew exceedingly well by repute, burst in upon me and insisted upon having me share with him the larger and better quarters which he had already secured. I have met many foreigners in the interior, living in semi-Chinese fashion, but I have never known anyone who has succeeded in adapting himself so thoroughly to the Chinese language, Chinese customs and Chinese methods of living as this Mr. Candlin. He is the only man I have ever seen in China who seems to meet the Chinese and live with them on terms which entail no self-consciousness or restraint on either hand. This is something which the average foreigner fluent in Chinese may achieve after years of acquaintance with one or two families, but which no other foreigner whom I have known experiences in his general intercourse with the Chinese people. I have often noticed that other Orientals, seemingly as foreign to the Chinese as we Occidentals are, contrive to be thoroughly at ease in all Chinese circles. The Turki of Turkestan, for instance, who have been long resident in China, arrive at a degree of intimacy with the Chinese whom they meet which no foreigner can hope to rival, although to all apparent intents the Turki are as foreign in appearance, language, customs and religious tenets as we Occidentals are.

Having dispensed with my camel driver, the care of my two animals now devolved upon me. The stable boys in the inn were ready to take care of horses, mules and donkeys but were frankly ignorant of the ways of camels. Although I had been only a few weeks with the animals and had been no more than a witness of their care and management, I was the superior of all in the inn in the matter of camel lore. It, therefore, became my province to prescribe their food and care. I had been frequently told that all one had to do was to throw hay on the ground in front of them and see that they got water every few days and that they would do very well for themselves. I soon learned, however, that a camel is a more intricate mechanism than most people suppose, and while the man with expert knowledge may seem to do no more for them than the amateur, for the one they will fatten and thrive with erect and sturdy humps, while for the other they will droop and wilt and draw so largely upon the fat of the humps for sustenance that a few weeks mis-management will undo all the good of a summer's grazing.

The Gentle Art of Dealing with Camels

Although many thousands of camels are owned in the Ninghsia district there are no camel inns in the city itself, and it is very difficult to find anyone who is competent to give advice about the care of such animals. It was only a few days before I was conscious that my two animals, which were both comparatively young and were in perfect condition when I arrived at Ninghsia, were going into a decline. I experimented with several kinds of hay and straw, trying freshly cut swamp grass, millet straw of which all ponies are very fond, and wheat straw, but none of them seemed to appeal strongly to the camels. They refused to drink, moreover, and at the end of a week their humps had become noticeably flabby and were falling over to one side or the other. In the Ordos we had travelled hard and had left them entirely to their own devices in the matter of food, and yet they had been as fresh and as fat at the end of the journey as at the beginning. I set out at once to find a camel driver whom I could employ to take care of the animals but it was a vain search. A few Chinese knew that they should be fed salt and water-soaked peas while in civilization. In Ninghsia I could not get the peas, however, so resorted to small black beans with a good allowance of salt mixed in them, but this the camels refused to touch. I made a nose-bag

and tied it on the younger of the two but she only sputtered and spit great quantities of half digested green grass into it, and roared so loudly under the indignity of having her nose encased in a bag, that I finally had to take it off. I learned later that black beans are as acceptable to camels as peas, but that a camel which has never been in Chinese hands but has always enjoyed the independence of the Mongolian grass lands has to be properly introduced to any such diet. The animal is made to kneel, ropes are passed over its knees and the thighs are lashed to the shins so that it cannot rise. The caretaker then takes hold of the wooden pin through the animal's nose, tilts its head back until it opens its mouth wide, emitting shrill screams of terror, and proceeds to thrust large handfuls of salt and beans down the animal's throat. Most of this is at first ejected in violent blasts but a certain amount clings, and when the animal begins his rumination, there are enough beans left in his mouth and throat to give him the taste of them which he thoroughly relishes so that the next time he retains most of what is forced upon him and eventually learns to eat on his own account. When a lot of them are together, this violent initiation is not always necessary for the young camels seeing the older ones munching away with apparent relish, will nose about a large basket of water-soaked beans and salt, nibbling at the mess for a while and finally eat of their own accord.

I do not think that any European who has to do with camels ever fully exhausts his interest in the animals. Even after I had travelled with them many days' journey and had become thoroughly familiar with all their strange tastes and antics, I could never divest myself of the feeling that I was travelling with the circus. A camel is always awkward and ungainly alone, but a string of camels can be very majestic and when one is travelling with hundreds of them and sees the long line stepping and rocking in unison, in perfect harmony with the clang of their bells, they have a barbaric splendor and majesty which makes the strongest possible appeal to the imagination. Riding a pony through vast desert expanses may become exceedingly monotonous, but with a string of camels in the great alkali wastes, the imaginative person is always conscious of the fact that he is part of an exceedingly picturesque cortege. This does not apply to foreigners alone, for while the life in the wilderness may make somewhat less of an appeal to the Chinese imagination, there can be no denying that it does fascinate even the oldest camel driver. One might think that they would come in time to regard all this trekking across the waste places a matter of routine, but they have told me that it is otherwise. They talk with great enthusiasm of the life, compare themselves with the unfortunate people who must sleep under roofs on hot *k'angs* in dingy inns, and dilate in more or less poetical diction on the joys of living in the open, of sleeping under the stars, of camping where they will and moving when they feel inclined. The freedom of their life appeals strongly to them and makes them exceedingly independent and courageous, while the health that it gives them is fully appreciated and they are rather boastful of their superior endurance.

The two-humped camel is probably indigenous to Central Asia. It is called the Bactrian camel, probably because the Greeks first laid eyes upon this variety in Alexander's Bactrian kingdom in Asia. Travellers in Turkestan sometimes encounter wild two-humped camels in the Taklamakan Desert and zoologists are not quite agreed as to whether these are native camels in the wild state, or domestic camels run wild. Because camels are associated with such semi-tropical countries as Syria, Arabia and Egypt, they are usually regarded in the Occident as tropical animals, and the average tourist who visits Peking is much astonished to find camels not only weathering the severe winter, but exceedingly comfortable in a coat as heavy as that of the Arctic bear. They will lie placidly throughout the coldest night in Mongolia chewing their cuds and facing terrific winds, with a temperature which can only be rivalled by the excessive frosts of Alaska and Northern Siberia. To changes in the weather they are, however, susceptible. Camels reared in the comparatively temperate climate of North China begin to lose their hair early in the spring and at the beginning of summer are completely naked and are pathetically scrawny objects. The camel's fat all goes to his humps and he is never heavily built but with his winter fur he looks like a very sturdy and stalwart animal. The carrying camel has exhausted most of his reserve store of fat by spring and then when he loses

his hair, he seems mere bones and parchment and excites the pity of everyone who is not accustomed to his habit of shedding his coat. It takes some weeks for the new pubescent crop of wool to be visible and during this period a cold wind may work great havoc in a string of naked beasts. As this is the season at which the females usually give birth, both they and their offspring have to be mid-wived with the greatest possible care, and one often sees the mothers and their weak-kneed children who are often so delicate that they cannot stand upon their own legs, swathed in many layers of sacking and even done up in sheepskins to protect them from changes in the weather and the cold night winds. The Chinese and the Mongols say that the proper period of gestation for a camel is one year under perfectly normal conditions, but that when the female has been worked throughout the period, it often requires as long as sixteen months between the time of conception and birth. Birth with the female camel is a more serious ordeal than for most other animals. The expectant mother becomes exceedingly restless and irritable when she becomes conscious of the fact that she is about to bring forth, and the nomads of Asia, Mongols, Turki and others, are in the habit of watching these symptoms closely and when the time approaches, they tether the female or put guards upon their herds. In Mongolian country one frequently sees camp-fires in the open where the camels are grazing in the spring, with horses ready saddled. This precaution is taken because when the first pangs of birth commence, the female will, unless tethered, bolt away from the herd and run at top speed until her offspring is born. If a camel gets away, it devolves upon all the herdsmen interested to pursue her on horseback, following the trail as best they can, for in spite of her burden, she can outrun the fastest horse, to find her and her calf when it is born, and to bring them back to the fold.

The camel is naturally a pacing animal, that is the right hind leg moves with the right foreleg. Trotting camels are, however, not uncommon. At a walk the camel picks up all four feet separately. If it steps out with the right foreleg, the right hindleg follows, then the left foreleg and last of all the left hindleg. The forefeet which are always larger than the hindfeet, are lifted high in the air, but the hindfeet simply slide along the ground and upon rough surfaces the camel is liable to stumble with his hindfeet but never with his forefeet. The broad pads, as everyone knows, do splendid service in the desert but on hard surfaces they soon become tender and in mud or upon ice the camel is not at all surefooted and is inclined to be panicky when his long legs start going in all directions. When his pads get completely beyond control upon an icy surface, he will sometimes become desperate and throw himself upon his side to settle the matter. During long journeys over hard, gravelly soil, the pads frequently wear thin, are bruised by pebbles and become tender and swollen. The camel driver first doctors these by bleeding the pad. A spear shaped lance is thrust into the foot between the pad and the hairy part of the hoof. A few drops of blood are squeezed out and the swelling almost immediately subsides. If the irritation is very bad, however, leather pads are stitched to the callouses with rawhide thongs and the camel goes shod until his feet have healed.

Unlike most beasts of burden the camel is an extremely talkative quadruped and has some comment to make upon everything that is done to him or about him. The variety of sounds that he can make astonishes even experienced drivers at times, and one has to be with camels a long time to know what each particular squeal, grunt or bellow means. Nothing excites them to such a versatile performance as any trifling with their feet. The unearthly screams and groans emitted by a camel who has been carefully bound and whose pads are being either lanced or reinforced with leather soles, would deter anyone from going on with the operation who was not thoroughly familiar with their complaining temper. Next to trifling with their feet in their catalogue of dislikes, is trifling with the wooden pin through their noses. If one is very tactful with a camel which he constantly tends, he can take hold of the nose rope or of the pin itself without eliciting any protest, but the camel that has had many masters and some rough treatment will distend its neck to the utmost and adroitly dodge every effort to get hold of either the rope or the pin, squealing frantically all the while.

These pins are usually cut from tough desert roots with a knob on one end and a leather button on the other. The young camels have their noses punched when they are about two years old.

It is not a difficult or an elaborate process for the division between the nostrils is a mere parchment, but the memory of this operation never leaves them and when a new pin has to be adjusted, there is always a struggle and a terrific outcry. The moisture in the nose softens the pin and the camel can frequently pull hard enough on the rope without pain to himself to snap it. He then goes wandering off exultant in his freedom and defies the whole world to catch him. At such a time no one but the immediate master of the beast can get anywhere near him and even he can exercise no authority until he has got the renegade by the long beard under his throat.

When a camel for any reason decides to move in a hurry, he displays remarkable speed and can easily outrun a horse. The older camels prefer to move at a majestic walk which looks very slow until one observes how fast the legs of the man who is leading the string are moving. The length of the camel's stride makes up for his deliberate gait. It is not hard to persuade a young camel to go at a very fast pace, and in many parts of Mongolia where camels are cheaper than horses, the Mongols habitually ride young camels, and make remarkable journeys on them.

Imperial Couriers in Mongolia formerly rode fast camels and are said to have done as much as a hundred miles on one animal in a day by practising peculiar cruelties upon their mounts. A string of camels loaded to their utmost carrying capacity average only about twenty miles a day, but lightly loaded they will easily travel thirty-five miles a day over long journeys. The conventional camel load throughout China is three hundred catties, or four hundred pounds, but in practice some animals will, of course, carry much greater burdens with ease. It is the practice in many districts to use a stallion camel as the leader of each string, chiefly because they are more sedate and show more sense of responsibility. Whether they are lead or not, they will follow a trail and will not stop to graze by the wayside, so that they do not require either leading or urging. Many of these animals are enormously strong, and will carry almost five hundred catties, in addition to the tent, water-jars, brooms, and other impedimenta of the camp.

In camel-drivers' parlance, camels are not counted in tens and hundreds, but in twelves and sixties. The unit of twelve is called a *tsao*, and is theoretically the number that can eat from one pile of hay. The unit of sixty is called a *fang*, and is the number that goes with each tent in an encampment. The number of camels in a string varies greatly, but probably averages about nine. In an emergency, one man can lead and take care of as many as fourteen, but this is not considered sound practice, and is not an economy.

The camel's peculiar adaptability to desert life is well known. He not only can live in the desert and eat coarse desert plants, but he is much happier and healthier there than in other environments. Coarse desert grasses, thistles, woody little plants bristling with thorns, sage, evil smelling artemesia and tough little evergreen shrubs—all of which are poison to other quadrupeds, the camel eats with the greatest relish, and with the best possible results to his inner anatomy. When one arrives with camels in pleasant, well watered valleys, with great stretches of rich meadow-land, one would expect the camel to cavort about and enjoy himself, but he does nothing of the sort. He sniffs at the water, drinks a little if he has had nothing to drink for several days, nibbles delicately at the grass, and begins to pine, hankering after the weeds of his native desert. The camel-drivers explain that there is a certain amount of various minerals in every desert plant, and that it is the alkali flavor and the alkali tonic which the camel's taste and system both require.

Camel Characteristics

In every country in which camels are raised and used, they have an evil reputation, and are denounced as ill-tempered, stubborn, and slow-witted beasts. The men who are associated with camels are also the objects of suspicion on the part of their fellows. Through living much in the wilderness, and through leading a life very foreign to that of the cities, they become independent, but shy, somewhat taciturn and very suspicious of

the tricks and subtleties of townspeople. Anyone who has lived in the wilderness with camels and camel-drivers, will be convinced that both are much maligned. The camel is a very conservative animal, hard to know and slow in friendship. He resents vigorously any attempt on the part of a stranger to get familiar with him, and if one takes the nose rope of a strange camel in his hand, he is almost sure to be greeted with a hostile scream and a shower of offensive green filth which the animal brings up from one of his numerous stomachs.

When a camel comes to recognize one as a friend, however, he is more demonstrative than a horse. He will come to meet you wherever he sees you, put his nose over your head and croak and sputter with delight. He knows the peevish man who jerks his nose rope, and he also knows the man who taxes it gently and who never pulls hard upon it, and in these matters, the camel's memory is remarkable. He will recognize a friend after many months' separation, and will trot up and greet his old acquaintance with much fervor. The younger of my two camels was so willing to please, after we had been several months together, that she would kneel down to be loaded without any suggestion from me, and when I wished to ride, she would remain kneeling until I had adjusted myself, watching me all the while, and when she thought that my seat was firm, and had seen me take a grip on the ropes of the pack, she would rise and start off of her own accord.

The first time that a camel rises or kneels under an amateur rider, the sensation is a peculiar one. In either case, it consists of three distinct and violent lurches, and unless the beginner has a firm hold, he is bound to roll off, either forwards or backwards. The effect of the camel's peculiar motion is exaggerated. I have never yet met a Chinese or other Oriental who complained of sea-sickness from camel riding, though everyone agrees that at first it is very hard upon the back, and that until the skin is hardened, the amateur is more badly chafed and sorer after a ride than he would be on a horse, no matter how rough his gait. Anyone who wishes to become familiar with a camel should not attempt to stroke his face or nose, as this is only tolerated after long intimacy, but should try to scratch him behind the ears, or on the throat. This will be resented at first, but is really much appreciated and breaks the animal of the habit of putting his head beyond reach every time a hand is raised.

The way to get on the good side of the camel-drivers is to be enthusiastically interested in their mode of life, and to seem to enjoy it. The winds of the Mongolian deserts are like gales in the Arctic, and when the thermometer shows thirty below zero, and a stiff north wind is ruffling the fur on the camels' throats, a well pitched tent of two thicknesses of canvas with a fire going inside, is a very acceptable shelter. Now if one is inclined to be received into the camel-drivers' fraternity, and to endear himself to his hard fisted fellow travellers, he has only to announce on such a night that the air in the tent is too hot and close for him, and that he prefers to sleep outside on the ground. This is a big price to pay for popularity, but the results are sure. The seasoned camel-driver will eschew the tent in the bitterest weather, make up his bed of felts, quilts and furs on the open plain, and remove all of his clothes as he squirms into it, piling the garments on top of him as he takes them off.

Caravan Equipment

When a camel caravan sets out into the desert, the stock of food, tools, and the like, must of course be sufficient for all needs and all emergencies, because nothing can be purchased on the way, and it might in some instances be almost fatal to count upon meeting other caravans and borrowing from them. A shelter and a fire are, of course, the first essentials.

The camel driver's tent in the northwest is built on the Manchu military model. There are three poles, two uprights about seven feet long, with an iron ring at the top of each, and a roof-tree about four feet long, the ends of which fit into the iron rings on the uprights. This construction would lead one to believe that the bottom of the tent should be rectangular, but the bottom is a perfect circle about fourteen feet in

diameter. The tent-makers have worked out their patterns so long ago that no one knows how the original designer of this shape of tent made his angles and curves coincide, but the novice who attempts to cut out a tent along these lines will find himself involved in trigonometry before he is well started, and is almost certain, after focussing all his rusty mathematics upon the problem, to create something which sags at every angle and wrinkles at every curve, while the professional tent-maker can lay the whole thing out in half-an-hour by rule of thumb and careless measurements with his pipe stem, and create a tent, which when pitched is as taut and smooth as an inflated balloon. Three poles, a single piece of canvas, and eight or ten iron pins to fasten down the hem, constitute a perfect house for six or eight men, which can be pitched by two men in one minute, and which will weather the most violent gale. Any kind of a tent which presents a perpendicular, flat surface to the Mongolian winds, is utterly useless.

In Ninghsia there are no tent-makers and no camel-drivers to give advice. I had the measurements of a camel-drivers' tent. I bought all the materials, employed a tailor and sat over him while he followed my directions. The result was a matter of wonder and scorn to every human being, Chinese or Mongol, whom I subsequently encountered in the waste places. It was made of better material than most tents are, but the first breeze that blew over it ripped holes in it, through which one could pitch a sack of flour, and the rope loops that were meant to fasten it down, were all at the wrong corners and drew the shelter into such weird shapes that the lightest fall of snow or rain found ample pockets in which to collect moisture and ooze it on to the heads of the occupants. When the professional camel-driver pitches his tent, it springs from the ground before the packs of the camels are removed, and by the time that the animals have wandered off to their grazing, a trench has been dug around it, a wall of earth has been thrown up about the skirts of the tent to keep out the wind, and a warm fire is blazing inside, with a kettle of water sizzling upon it.

The camel-driver's stove is simply a support for the pot. It consists of four upright rods of iron, rivetted to a series of six or eight hoops of iron which keep the fire together. It is like the hooping of a well-bound barrel, without the staves. The land produces the fuel, which may be either dried shrubs, or the sun-dried manure of the summer herds of cattle and camels. Every camel driver carries flint and steel, but in these unregenerate days, he also tucks a box of Japanese matches into his bosom and uses them to kindle his fires as long as he can keep them dry, to save himself the trouble of trying to get a light from tinder with benumbed fingers.

The equipment of a caravan, apart from the tent and stove already described, is limited, but adapted to all needs. Each man carries, in addition to his flint and steel, his own knife and chopsticks, several sizes of needles for sewing, a packing needle for sewing felt and mending camel saddles, an abundance of coarse cotton yarn, bits of rawhide for stitching, and odd patches of leather which always come in handy, and an antelope horn for punching holes, splicing rope, and opening hard knots. As common property, they carry a boiler for cooking food, tall, narrow sheet-iron pots for brewing tea, spades for trench digging, hatchets for cutting fuel and pounding tent-pegs, a bread-board, a big meat knife, an earthenware bowl for making dough, a stiff broom for sweeping the camels (camels are swept and not curried), copper bottles of about three gallons capacity for water, and bottle-shaped wicker baskets for meat. In addition to these, all sizes and styles of bags and sacks are carried, and are never adequate for the supplies of flour, fuel, ice and salt, which the drivers think it necessary to carry.

The camel-driver's staple food is a noodle preparation known all over China as *mien*. They also carry quantities of bread, baked with mutton fat to keep it soft and fresh, and sacks of perched millet and parched barley flour, which can be made into a porridge, with the addition of hot tea. Mutton is the staple meat food and is usually cooked with the noodles. Onions, and sometimes a few potatoes, are carried to flavor the limited number of dishes which can be prepared. Vinegar is a luxury,

and pepper and sesame oil are ultra-luxurious adjuncts to the larder. Nearly every caravan has one or two muzzle-loading rifles, which are fired off at night to scare wolves and thieves. With these an occasional rabbit or antelope is bagged, and such an addition to the routine menu is much appreciated.

The routine life of the caravan is easily described. Camels are gregarious, and when the drivers start out after them in the afternoon, they are usually found in a group, making the best of the scant desert herbage. They are brought in at, say, four o'clock in the afternoon, and are made to kneel, each between his packs. Camp is struck, the animals are loaded with an amazing amount of abuse and profanity, but with surprisingly little rough treatment, and the long column starts off, headed by the man who is most familiar with the particular desert trail that is being travelled, and advances on its way just as the sun is setting. Every ten *li*, there is a halt. The first string stops at the side of the road, the next lines up beside it, and as the last string comes in, the first starts out again. When three or four hundred camels are travelling together, this gives the leading string a halt of perhaps five minutes; the greater the number, the longer the halt. The length of the journey is always dictated by the availability of water and grass. As a rule the end comes about three in the morning. The leader of the first string comes to a well or a spring and stops. All the others draw up beside him, the animals are made to kneel and the loads are taken off as quickly as possible. The pack-saddles are roped tight, and the animals are turned loose to hunt their own food. By the time they have all strolled off, the tents are pitched and fires going, and in each tent ten or a dozen men are sitting cross-legged around their fires, talking of everything in the world, but world affairs, the peculiar gossip of the desert dwellers. In the morning each man gets out his needle, mends his clothes, mends the camel-saddles, platts camel-hair into ropes and belts, and finally does his share in the preparation of a morning meal. There is usually a professional entertainer among them, who is either a philosopher or a storyteller, and who, by way of compensation for natural indolence and disinclination to work, exercises his superior wit in the diversion of his fellows.

Morgan & Co.'s New Partners

Junius Spencer Morgan, Jr.; Elliot Cowden Bacon and George Whitney have been admitted as partners in all of the Morgan firms.

These firms are J. P. Morgan & Co., New York; Dréxel & Co., Philadelphia; Morgan, Grenfell & Co., London, and Morgan, Harjes & Co., Paris.

Junius Spencer Morgan, Jr., is a son of J. P. Morgan, senior member of the Morgan firms. He was graduated from Harvard in 1914 and joined the staff of Morgans there in the following year. During the war he served as a lieutenant in the navy, seeing service on a destroyer at Queenstown and London. He is twenty-seven years old.

Mr. Bacon is a son of a former partner in Morgans, Robert Bacon. He is thirty-one years old. He was graduated from Harvard in 1910 and joined the staff of the Morgan firm there in 1914. He served as a captain of field artillery with the 304th Regiment of the Seventy-seventh Division during the war, seeing active service in France.

George Whitney is thirty-four years old and a nephew of a former Morgan partner, Edward F. Whitney. He was graduated from Harvard in 1907 and joined the Morgan staff in 1915. He was undergoing training as an artillery officer when the armistice was signed. Mr. Whitney accompanied Thomas W. Lamont, of the Morgan firm, to Europe when the latter acted as financial adviser to the American peace delegation.

All of the new members of J. P. Morgan & Co. are married and all have children. They bring the total membership of the firm up to fifteen. This includes all of the four branches of the house.

The So-called Student Movement

By Gerve Baronti

The Chinese students and the commercial class of China are welded together for the purpose of furthering the boycott on Japanese commodities. The student movement as it is called, has an intellectual substratum and a surface of patriotism. Like most youthful movements it lacks systematic methods. However, if properly organized, considering its strong points, grit, doggedness and determination, it could be the greatest force in China for the exposition of Japanese camouflage. At present it is working against great odds and must, with its inadequate programme, interfere with communications and commerce, which are exempt from the boycott. The Shantung question has raised havoc in China, and no amicable adjustment for the near future is anywhere evidenced. The students continuously clash with the authorities and it is reported that they have been attending school at Peking under the surveillance of the soldiers and the police. The Government has demanded through the Ministry of Education that two student leaders be dismissed from the Peking Government University so they may be punished for some "heinous crime." This seems a foolish procedure, for instead of alarming the other students it may incite them to further riot. The Japanese Minister to China has sent a despatch to the Ministry of Foreign Affairs couched in most severe terms threatening that Japan may find it necessary to adopt drastic measures to protect her people and commerce. The students have been delivering lectures on the streets and in the parks recently. They choose as their subjects the Shantung question and the recent arbitrary action of the officials against the students at Tientsin. The other day while lecturing in the busy quarters outside the Chienmen, at Peking, they were surrounded by armed police. In most cases they objected to arrest and refused to leave the place.

There is much against this movement as there is much against any new movement which strikes for liberation of the oppressed. It is to be hoped that adequate organization will straighten things out for it in the near future and allow it to develop sanely if it is to be reckoned with politically. Perhaps a students' convention held in one of the large cities where plans could be proposed and arranged might be a start in the right direction. Certain able students from each university and several students from each of the classes of the higher schools might be chosen as delegates, in which case permanent executive headquarters should be established and the future campaign decided upon should be definitely made known.

On the other hand many think there is danger of an untrained movement becoming a political instrument in the hands of certain unscrupulous leaders. In a country where political unrest is rampant this is a serious question. If this embryonic movement should be recognized as a power the result might be disastrous. If certain unjust claims were made on the Government which by the students were considered just they could refuse in a body to attend their schools and could start riot and rowdiness; causing the Government much temporary and perhaps permanent embarrassment.

The student movement has accomplished much. It has "started something" by arousing China from her lethargy,—it is certainly unable to carry on if there is lack of organization and leadership.

The students will get what they wish in the end. It is inevitable. They are the men of to-morrow. The future affairs of state must be governed by them. How much better they can manage in the future if they will return to their schools and continue their education for the present! They have been joined by their elders, the merchant classes. These classes, because of the advantage of age, and consequent experience, can carry on a movement which might be known as the "People's Movement" much more effectually than the students by themselves. In this case the students, knowing that their ideas would be reconstructed on a sane basis by their elders, could return to their schools, there

to absorb as much knowledge as they can get and to plan a future programme which, while it must of necessity be more deliberate, will certainly be more effective for their ultimate desire, which is a complete reform of conditions in the country.

Japanese Mine at Haichow

Mention was made a year ago, says the Haichow (Kiangsu) correspondent of the "North-China Daily News," of the beginnings of an iron mine on the southern slopes of the Haichow mountain, a concession having been granted to the Japanese. The earlier work was clearly of an exploratory nature, consisting of narrow trenches run into the hillside until a depth of 30 or 40 feet was reached. It was generally believed that these explorations were unsatisfactory and that the quantity of iron ore discovered was insufficient to warrant large operations. Later on, however, there was a renewal of interest and there are now about 300 coolies employed. Two large shafts have been sunk to a depth of 60 or 80 feet, the later one being three miles west of the first location. Evidently something has been found to justify further expense, for the work being done is evidently the beginning of an extensive system of mining.

Little can be said positively, but it is now believed that the iron project has been shelved and attention is being paid to other ores that have been discovered in the process. Your correspondent is a bit rusty on his metallurgy and hence is unable to say exactly what has been discovered. The common report among the Chinese is that "electricity" is being mined in paying quantities! Others who have seen bicycle lamps of the familiar pattern say that it is "carbide." My guess is that it is magnesium ore, or phosphorus.

Sprinkled on burning paper it burns readily with a greenish flame, but gives out no odor. Whatever it is, it is certainly being found in large quantities. They are, in addition to the shafts that are being sunk, digging down great quantities of the ore from the sides of the hill, and piling it up in large dumps. There are several Japanese in charge, but active operations are being conducted by Chinese foremen of the familiar type.

Later.—The Japanese mines are being energetically worked. It was reported some days ago that work on the railroad had actually been started but investigation showed that it was only an ore road that the Japanese are building from their mines to the river bank, but whether it is to be for steam traffic or not is not known.

How Influenza Started in China!

Those familiar with Haichow, Kiangsu, would certainly get a shock on entering the city from the East Gate to-day, says the Haichow correspondent of the "North-China Daily News," and would rub their eyes twice to be sure they were seeing straight, for the ancient drumtower, Haichow's one piece of architecture worth the name, has come down.

It consisted of the usual arch spanning the main street, but on top of it was a tasty pagoda of several stories. It is this pagoda that has come down and only the arch remains, like the stump of Dagon.

For several months there has been a most deadly epidemic, possibly influenza, in a decidedly malignant form and some one said that the drum tower was to blame. It was logical enough—there was the drum tower and there was the plague, so down it came. The fact that just as the demolition is being completed the plague is waning is proof positive that the real cause was discovered.

It would certainly seem that, to destroy such an ancient and picturesque monument of the past, a great deal of argument would have been necessary and the highest authorities invoked. But no, nothing of the kind. The man who pointed out the source of the trouble is of no particular standing or learning.

Radio Service on Pacific Extended

Exchange of press despatches and commercial messages by radio between California and the Hawaiian Islands, Guam, the Philippines and Japan on a much more extensive scale has become possible since arrangements recently completed by the Navy Department became effective December 20.

Through the use of modern high power, high speed operating equipment it is estimated that it will be possible to transmit and receive more than 100,000 words a day between Hawaii and the Philippines, 200,000 words a day between San Francisco and San Diego and Hawaii and about a thousand words a day on a slow speed circuit between Hawaii and Japan. The Hawaii-Japan circuit, operating under an arrangement with the Japanese Government, is available only nine hours a day, and due to the necessary use of old type slow speed equipment will be capable of handling but about fifteen words a minute at the inauguration of the service.

Rates on press despatches over the new radio circuits are low, insuring, in the view of officials, a widespread exchange of news between the United States and the Orient and American insular possessions in the Pacific. The rate decided on is six cents a word between California stations and Manila and three cents a word to Hawaii. In the past the navy has been in a position to handle less than 5,000 words for transmission to Hawaii and the Far East daily, due to low power equipment and hand transmission. Exchange of news matter between the United States and the Far East has been dependent on a greatly congested cable heretofore.

The new arrangement, which will be open to routine commercial business, is expected by officials to aid greatly also in the building up of trade by American interests with Hawaii, Guam and the East.

New equipment of the most modern type is now being installed at Honolulu and Manila. The improved system will include a 250 kilowatt loop between San Francisco and Honolulu and a similar loop to the Hawaiian city from San Diego. Both systems, capable of transmitting and receiving messages at the same time, will have a capacity of about seventy-five words a minute each way. Mechanical sending devices, using tape upon which the message to be sent has been punched in dots and dashes and which feeds through the sending key automatically in place of the old style hand sending and photographic receiving systems will be used. Between Honolulu and Guam and Cavite, Philippine Islands, similar loops of 100 kilowatt power will be used.

All group stations in the chain will be operated by the central control station method whereby the sending and receiving equipment of any number of stations in a given locality may be operated from a central point. Under the new arrangement but a few hours will be required to transmit lengthy messages from the Philippines to any point in the United States. It is hoped to complete pending negotiations with the Japanese Government for close co-operation between the new Pacific radio system and Japanese stations, thus insuring the efficient exchange of news and commercial messages on a large scale between Japan and China and the United States.

In addition to providing an extremely valuable means of communication between the United States and the islands of the Pacific and the Far East the new system will be a valuable link in the national defence system, naval officers asserted. A great danger in time of peace, they said, was that the radio communication system would disintegrate through its personnel becoming inefficient and its material useless through lack of use. By handling constantly a large volume of traffic daily the system would be kept in the highest state of efficiency at all times, they said, and should necessity arise the personnel would be highly trained and ready for any emergency that might develop.

Privately owned companies in Hawaii and near San Francisco, whose old-fashioned equipment now seriously interferes with communication between the naval stations, also will install new and modern apparatus.

Rich Mine in the Shan States

In view of possible developments in the south-west of Yunnan province on lines similar to those of the Bawdwin mine, across the Yunnan border, in the Northern Shan States of Upper Burma, reference to the latest report of the Burma Corporation, the owners of the property, should be of particular interest. The Bawdwin mine is regarded as one of the richest lead zinc-copper-silver deposits in the world, and is a development of the ancient silver-lead mines and slag-dumps near Lashio, about 50 miles south of the Chinese frontier. The Chinese had been operating on the site for about four centuries, and when they abandoned work about 70 years ago they left many old workings, one of which was a large open-cut, as well as a huge accumulation of slag which still contained large quantities of lead and some silver. The slag was estimated to be about 115,000 tons, and to treat this a lead smelter was erected at Mandalay, but it was later on moved to Namtu, about 12 miles from the mine, where refineries were also erected. Between 1913 and 1915 mining development work was carried on effectively and thereafter mining proceeded actively, the assured ore being estimated on June 30, 1917, at 3,793,000 tons, assaying 27.9 per cent. lead, 20.7 per cent. zinc, 0.5 per cent. copper, and 25.7-oz. silver per ton. At the end of 1918, according to the latest report, the ore reserves were 4,404,000 tons, assaying 24.1-oz. silver per ton, 26.2 per cent. lead and 18.4 per cent. zinc. The total receipts during 1918 were £1,008,244 with operating expenses in Burma at £591,277.

The report for 1918 shows that the amount realized from sales of lead and silver was £913,696, against £739,577 for the previous year, and the total receipts £1,008,244, against £796,227. The operating expenditure in Burma amounted to £591,277 in 1918, against £479,694 in 1917. The amount receivable by the corporation from Burma Mines, Ltd., was £181,480 against £144,108 for the previous year. The work during the year on the Shan lode has developed a fair-sized copper ore-body, high in silver, and the reserves include 283,000 tons of this copper ore, assaying 21.6-oz. silver, 14.2 per cent. lead, 3.7 per cent. zinc, and 10.2 per cent. copper. The tonnage developed during the year amounted to 324,869 tons, a considerable amount when taking into consideration the large footage of driving and cross cutting necessary to connect the Chinese and Shan ore-bodies and to block out the ore. During 1918 the smelter and refinery produced 18,641 tons refined lead and 1,970,614-oz. refined silver.

After discussion with Lawrence Addicks, the consulting engineer, it has been decided that an entirely new and modern lead-smelting plant and reduction works of a capacity to produce 60,000 tons of lead and 5,000,000-oz. of refined silver per year should be erected at Namtu. Plans of the new smelter and refinery are now in progress, and the preliminary steps in connection with the erection of the plant have already been taken. Owing to the careful consideration and investigation necessary on account of the introduction of a new industry to Indian labor and conditions, progress with the Indian zinc smelting works has not been rapid. Plans for a plant to deal with 10,000 tons of spelter and 30,000 tons of sulphuric acid per year have now been got out. The preliminary steps have been taken for the erection of works at Jamshedpur, adjacent to the works of the Tata Iron and Steel Company, the sub-lessors of the site, and tenders are now being invited for the supply of the necessary plant and machinery. Steps are being taken for the formation of a new company in India to take over the Bawdwin mine from Burma Mines, Ltd. The new company will be incorporated under the Indian Companies Acts, and will have a capital of 18,000,000 shares of 10 rupees each, of which 13,531,182 will be issued fully paid to Burma Mines, Limited, as the purchase price, the remainder being held in reserve. These arrangements when carried through will entitle the shareholders in Burma Corporation to receive 14 shares in the Indian company for each share in the corporation.

In the course of his speech the Chairman, Mr. Herbert Guedalla, said that in the newly developed Shan section 283,000 tons of ore had been opened up by January 1, 1919, while to June, 1919, a further 81,000 tons of ore had been opened up, some of which went as high as 20 per cent. in copper. "Apart from the silver, the lead, and the zinc," he asked "is it not possible, or even probable, that we are opening up in this new section one of the largest and richest copper mines in the world?"

New Process Molybdenum-Steel

China's and/or Japan's Opportunity

The invention of a new steel, far in advance of any high-speed steel hitherto made, is ascribed to John Oliver Arnold, professor of metallurgy at Sheffield University the discoverer of vanadium steel. It is unrivaled in hardness, and in tool form will remove a greater weight than any other steel and it possesses comparatively longer life due to the use of molybdenum, instead of tungsten.

If large quantities of molybdenum (a hard, silver-white metallic element) can be found and the price reduced tungsten will take a back seat, because 6 per cent. molybdenum will achieve more than 18 per cent. tungsten.

Professor Arnold is prevented under the defense of the realm act from utilizing his invention industrially. He is patenting his invention in England and America and will be allowed to proceed with his American patent on condition that he publishes nothing concerning it. He is absolutely forbidden to communicate the details of his discovery to anybody in Great Britain except under censorship.

The British government has asked Professor Arnold whether he is willing to hand over his invention to the state, and on what terms. A representative of the American government has made a special journey to Sheffield to investigate the discovery, and agents of the United States are prospecting in America and Europe for deposits of molybdenum, which previously had been found chiefly in Canada.

Since the announcement of the discovery it has been brought to light that Prof. Arnold's formula has been known in the United States for several months, and steel experts hailed it as one of the greatest inventions in years.

For many years American inventors have been experimenting with a new steel process, substituting molybdenum for tungsten, but they have never been able to hit upon the right quantity of the alloy needed. To Prof. Arnold and his associate, Prof. Fred Ibbotson, dean of Sheffield University, therefore, goes the honor of perfecting the process.

The new steel was used by the British in the manufacture of guns and shells during the war. The Germans got wind of the discovery, and it is believed this knowledge enabled them to hold out in the last offensive, as they had run out of tungsten.

For a long time several American steel manufacturers have been using molybdenum steel, but mainly in automobile and airplane parts. The NC-4 had molybdenum steel crankshafts and connecting rods when it crossed the Atlantic. The Fifth Avenue Bus Company is using molybdenum steel springs, while the Renault "baby tank," made in Great Britain for the French Government, carried molybdenum steel armor. It turned aside German high powered bullets.

The only difference in the formula used in England and that used in the United States is in the quantities of molybdenum used. The reason is that England is using the steel chiefly in the manufacture of high speed cutting tools that require to keep their edge when hot, while American manufacturers are mostly engaged in the manufacture of parts that must stand great stress and shock when cold, such as automobile parts.

Dr. Arnold's formula, according to B. F. Phillipson, president of the Climax Molybdenum Co., is composed of the following: Molybdenum, 5.79 per cent.; chromium, 2.79 per cent.; carbon, .75; vanadium, 1.29 and tungsten, none. This makes a steel that is said to be 25 per cent. physically superior to any other steel with 50 to 75 per cent. more dynamic strength. Its chief feature is its uniformity, which enables it to cut longer at a higher rate of speed. As three times as much tungsten as molybdenum is needed, this steel is commercially cheaper. The American formula has less than 1 per cent. molybdenum. American inventors have always thought it necessary to use 15 to 16 per cent. molybdenum in tool steel.

The German formula is somewhat similar to the British, containing: Carbon 75 per cent.; molybdenum, 6 to 8 per cent.; chromium, 3 per cent., and vanadium one-half of 1 per cent. or none. During the war the Germans imported all their molybdenum from Norway, where are large deposits.

The United States has the largest deposits of molybdenum in the world, chiefly in northern California, Colorado and Oregon.

In 1918 Canada produced from her ten mines 220,000 pounds of molybdenum; Mexico; Australia, Japan and Norway a total of 400,000 pounds and the United States 800,000 pounds.

At the office of the Climax Molybdenum Co., which is associated with the American Metal Co., Ltd., it was learned recently that its flotation mill at Climax, Col., is producing 1,000 tons of molybdenum a day. At that rate it is estimated that the supply from that property alone is good for thirty years.

In the last twenty-four months 100,000 tons of molybdenum steel have been manufactured in Great Britain, mostly on Liberty motors, army tanks, steel helmets, light armor and steel springs. The steel made for war purposes passed ninety-nine and one-half out of 100 tests.

Charles H. Wells, formerly general manager for the Ford Motor Car Co., has been actively interested in fostering the new process in Great Britain. Associated with him have been Dr. George W. Sargent, chief metallurgist for the Crucible Steel Company of America, the United Alloys Steel Corporation and the Carbon Steel Company of Pittsburg.

Book Review

"Old Tartar Trails," by A. S. Kent

Like most books dealing with real people and situations "Old Tartar Trails" by A. S. Kent (North-China Daily News and Herald, Ltd.), is intensely interesting.

Tartar lands and peoples have ever thrown a romantic glamour around the imagination of the West. Frequently it has been inspired by very little—some folk legend, a weird picture—the longing we all have for the distant unknown; or if we have touched the borders of China, perhaps the lure which caught the author of "the irresistible fascination with glimpses of the rough country beyond the Great Wall of China, the sight of a few Mongol horsemen and caravans of camels from Outer Mongolia, the accounts which friends gave me of the great free country to the north and casual acquaintance with the history of the Mongol peoples."

He tells us that "the most agreeable and interesting way of travelling in this country is with camels and horses, using the former for transport of baggage and the latter for riding," but these threaten to be superseded by both motor car and aeroplane.

Like all nomadic peoples the Mongols have a close companionship with animals and regard the horse as a valued friend.

Throughout the book we see crude ugly children at work and at play. They plant their barren soil and harvest their meager crops; they play their simple games on the cold desolate slopes of their hills.

Their moral life is very lax. They have an arrangement much like the primitive order of group marriage. Polyandry is practised and uncleanly habits make for disease.

Religion is taken as "diversion" and an occasional trip to a shrine relieves life of some of its monotony.

There is a chapter on Trade with much that is informative concerning Custom Houses, and Russian Exports to Mongolia, with accompanying lists, etc.

Many photographs taken by the author, showing keen artistic choice, are scattered throughout the book to illustrate his narrative.

Mr. Kent is somewhat influenced by the Russian style. He does not hesitate to use dull flat color when the picture requires it—but he throws it on the canvas with sympathy and understanding. Sometimes we feel a cool purifying breeze blowing off the Steppes he is crossing. He gives us an occasional glimpse of some old monument or carving which the Tartars, like the Mohammedans of India, have put into the Orient. We must thank the men of the desert and the hillmen for dreaming art into the East. The men of the plains have contributed little.

"Old Tartar Trails" should take its place with the more important descriptive books of China.

G. B.

China's Latest Treaty Relations

With the cessation of the European War it is inevitable that China's treaty relations with other states will rapidly increase. For example, before the War the number of states who had negotiated treaties and conventions with the Far Eastern Republic was seventeen; now it is nineteen, if the Central Empires are still included, and it would have been almost two dozen if the negotiations had fructified according to the expectations of their sponsors.

If we neglect China's international relations before the advent of Russia, because the other states were not the equals of the Middle Kingdom, then 1689 is the beginning of the Celestial Empire's treaty intercourse with European states. In that year China and her great northern neighbour concluded their first treaty of peace at the border town of Nerchinsk, and in these modern days of trained diplomats it is interesting to note that China's real negotiators two hundred and thirty years ago were no other than two Catholic priests—namely, Père Gerbillon and Thomas Pereyra, who were appointed by the Chinese Government to accompany its representatives as interpreters to the contracting parties.

At that date the Celestial Empire was still the proud unconquered victor and it was Russia who sued for peace and executed the peace terms. Then came the so-called "Opium War" and the Treaty of Nanking of 1842—"the first 'Treaty of Peace, Friendship and Commerce' to which the sign manual of China had ever been attached on the new footing of equality." China was the vanquished, and since then she has always played the rôle of the "under dog."

The names of other states who were in treaty relations with the Republic before the War as well as their first-treaty years are as follow:—United States, July, 1844; France, October, 1844; Belgium, 1845; Norway and Sweden, 1847; Germany, 1861; Portugal, 1862; Denmark, July, 1863; Holland, October, 1863; Spain, 1864; Italy, 1866; Austria-Hungary, 1869; Japan, 1871; Peru 1874; Brazil, 1881 and Mexico, 1899. In addition Congo Free State also concluded one with China in 1898, but it remained unratified until 1907 when it was annexed by Belgium.

The latest are the following:—China and Chile, February, 1915; China and Switzerland, August 1918. Because of the Russian-instigated movement for the declaration of independence by Outer Mongolia, the tripartite agreement of June 7, 1915, was concluded; since then, as noted in the FAR EASTERN REVIEW of last month, this autonomy has been cancelled and the aforesaid treaty abrogated, primarily as regards China and Outer Mongolia.

Last year Poland and Czecho-Slovakia desired to have similar treaties, but the Chinese Government remained unyielding on the question of any further grant of extraterritorial rights to new states and so the negotiations were suspended. Recently both Greece and Afghanistan are reported to have opened negotiations on the same subject, but in the case of the latter it is understood that the Chinese Government has replied with a Non Possumus, especially as the Chinese Minister in London has advised that Afghanistan, though an independent state, is still preoccupied with numerous controversies with Great Britain, Persia and other states.

Finally, four German delegates, named Wagner, von Borch, Schinemann, and Zischermann, have already sailed for this country to conclude a new Sino-German commercial treaty.

Encouragement for Chinese-made Foreign Goods

Recently the Chinese merchants all over the country petitioned the Peking Government in favor of encouraging native industry, especially machine-made foreign goods, such as soap, candles, matches and seventy other articles. According to the present treaties all exports from China must pay duties at five per cent. *ad valorem*. The petitioners suggest that were native-made goods to be exempted a great impetus would be given to the development of the growing native industry which sorely needs encouragement. Hence they ask that the goods should be exempted not only from such export duties, but also from production, *lo-ti-shui*, consumption and other internal taxes.

In reply the Ministry of Agriculture and Commerce observes that the desired exemption as regards export duties can be granted only in respect of such goods really exported to foreign countries. As regards goods transported from one Chinese port to another—i.e., those engaged in the coastal trade—the present system must still be adhered to, namely, they will still pay half-tariff duties or two and a-half per cent. *ad valorem*. But as regards the *lo-ti-shui*, production, consumption and other internal taxes, the request cannot be granted, inasmuch as the revenue derived from the present available sources of income is already insufficient and will be further diminished should such internal taxes also be exempted.

Thus the exemption will only apply to Chinese goods genuinely intended for foreign exportation, although as the petitioners point out, the Chekiang authorities have actually waived the collection within their province of such internal duties on Chinese machine-made goods, etc. Meanwhile the Government is not insensible to the people's efforts to develop the native industry, as a corollary to the boycott of "low grade goods." Thus in response to the Hunan tea merchants' petition for two years' exemption from the *likin* tax on the tea trade which, it is pointed out, has suffered grievously from the military depredations of the last few years in that unhappy province, one year's exemption has been granted to tea to be exported to foreign countries.

In addition a special rebate is allowed on the famous *cloisonne* ware manufactured in Peking, on the analogy of machine-made foreign goods.

Lumber in Fukien Province

Some information on the lumber trade at Foochow, in Fukien Province, China, is given by the Commissioner of Customs in his report on the trade of the port during 1918. He says that export of timber continues on the increase, and 1918 saw two new sawmills added to the number in existence. The value of timber exported abroad amounted to Haikwan Tls. 1,154,185. It has been stated on only too reliable evidence that the Foochow heavy lumber trade is finished. A definite limit has been laid down, namely, five years. Even now the cost of transporting lumber to Foochow is bringing profits down to a vanishing point, to such a degree that it will soon be more economical to import from abroad than to employ the local article. Reafforestation is, no more than a name. The older trees have practically all disappeared or are too far away from the waterways to admit of their being of any real commercial value. It must be noted, however, that these remarks do not refer to the pole trade, which has every indication of having proper attention paid to it. Fifty years of careful reafforestation would bring Foochow again to the front, but unless the Government undertakes it, certainly there is no private enterprise which would do so, since there is no hope of any immediate return, although the returns when they do come would amply repay the outlay of time and money. There was an excellent market for softwood poles and planks at Shanghai and Yangtze ports, owing to the shortage of foreign timber. In consequence, the clearances of junks for these places show a decided increase over the previous year's figures. An element of competition has been introduced into this timber trade passing the Native Customs by the establishment of a branch of the China Import and Export Lumber Company. This firm has built a sawmill at Pagoda Anchorage and is already handling a large percentage of the export trade in softwood planks and poles shipped by junk. After consulting a well-illustrated report made by one of the representatives of this firm it is possible to answer a question that is often put concerning the timber districts, namely, does conservation exist at all or are the forests being gradually devastated? It appears that there is no danger of there being a deficiency at present in Foochow poles. Large areas of land adjacent to the rivers are devoted to the culture of these fir trees, which are planted only 4 or 6-ft. apart. But with regard to large pine and other valuable wood it is a different story. As years pass, they are to be found farther and farther from the river banks, and no provision has been made for reafforestation.

Chinese in Dutch East Indies Want Better Treatment

Time and again the Chinese in the Dutch East Indies have agitated for better treatment; now they have once more come forward with their grievances and asked the Chinese Government to assist them to secure better treatment from the Dutch authorities.

Their first grievance is on the vexatious question of nationality. In the exchange of notes between China and the Netherlands after the signature of the Sino-Dutch consular convention of May 8, 1911, it is provided that whereas Dutch-born Chinese have always been considered as Dutch subjects wherever they went, thenceforth the application of the *jus soli*, or law of domicile, would be restricted to the event of such Dutch-born Chinese remaining under Dutch jurisdiction. On returning to China in the case of Chinese-born, or entering China in the case of Dutch-born, Chinese, the *jus sanguinis* or Chinese nationality of such persons would *ipso facto* revive. If, however, they chose to reside in other countries, they were at liberty to elect their own allegiance. Now the petitioners claim that the above provision in respect of "remaining under Dutch jurisdiction" should be amended so that, like the Chinese born within British territory, they could also choose when they reached the age of majority, whether to remain as Dutch subjects or continue as Chinese citizens.

Secondly, it is contended that the Dutch authorities are not according proper protection to the Chinese residents which now number over 700,000. The Sino-Dutch convention of 1911 provides that as the Chinese consular officers stationed in the Dutch East Indies are commercial agents, they will protect the commerce of their own nationals. This article, it is said, is being construed by the territorial authorities in a very narrow spirit, so that the desired protection is confined only to purely commercial pursuits whereas all other Chinese, such as farmers and laborers, of the latter there are alone eight hundred, are discriminated against and unprotected.

Thirdly, many elementary rights such as equality before the law, etc., are denied the Chinese residents. If any Chinese wishes to be treated favorably, he can take out papers of "assimilation" before the Dutch authorities. The effect of such papers is to make the person in question a quasi-Dutch subject for the purposes of legal protection, etc. But very few Chinese are willing to be so denationalized, although the temptation at times is well-nigh irresistible, and hence the discrimination.

Fourthly and lastly, it is claimed by the petitioners, the Chinese in the Dutch East Indies are not treated fairly. For example, Dutch subjects in China enjoy the rights and privileges accorded to the subjects of the most-favored-nation; but there is no reciprocal favorite treatment for Chinese in the Dutch East Indies and, in fact, the Chinese are rapidly becoming the least favored nationals.

The petitioners, therefore, suggest the speediest revision of existing agreements, etc.

New Steamer Launched at Shanghai

The second British standard ship built by the Shanghai Dock and Engineering Company at their Protung Yards, Shanghai, was launched on February 7, being christened by Lady Fraser.

The steamer measures 331-ft. 6-in. between perpendiculars, by 46-ft. 6-in. moulded breadth and 25-ft. 6-in. moulded depth to upper deck.

Designed to carry a large general cargo on moderate draft, the vessel embodies all the latest improvements in steel steamship construction based on the experience of practically all the shipbuilders and engineers in Great Britain.

Since the conclusion of the war some rearrangement of essential features was desirable, and the vessel will be fitted with steel lower masts and telescopic top masts to suit the Manchester Canal requirements instead of the war type of folding masts so necessary for evading the submarine observers.

The accommodation for the officers and crew is large and comfortable while the facilities for handling cargo are very complete, including four

steam winches on the upper deck, one steam winch with extended ends on bridge deck, and one steam winch on the poop. Two derricks are fitted at each hatch on the main deck, each capable of lifting five tons, and two steel derrick posts on the bridge are fitted with derricks to lift three tons. There are also two derricks on the poop aft. Powerful steam steering gear is fitted at the after end of engine room and hand steering gear aft. A heavy steam windlass is fitted on the forecastle.

The vessel is lighted throughout with electric light, and steam heating in all cabins, and a powerful Marconi wireless equipment will keep those on board in touch with the outer world.

The propelling machinery consists of one set of triple-expansion surface condensing engines, having cylinders 25-in., 41-in. and 68-in. diameter by 45-in. stroke, and fitted with Edward's air pump, usual bilge pumps and feed pumps, all round type steam reversing engine and steam turning engine. Steam is generated in three large cylindrical multitubular boilers fitted with Howden's forced draft and designed for a working pressure of 180 pounds per square inch, all constructed in the Dock Co.'s own workshops.

The auxiliaries include independent centrifugal circulating pump, Weir's type steam feed pumps, feed heater and feed filter, steam ballast pumps, steam sanitary pumps, evaporator capable of supplying 25 tons of fresh water per day, contraflow winch condenser and other fittings incidental to a vessel of this class.

The vessel has been built to Lloyd's highest class under the survey of Mr. Fletcher, their local surveyor, and the Government surveyors, Mr. Rendall and Mr. Williams.

Japan Makes Loan to China

On February 18, after much vain negotiation with the Banking Group in Peking for financial assistance, the Peking Government was obliged by the Japanese bankers with a loan of some Y.9,000,000. The price to the Chinese Government was 96, and the loan was issued against six months treasury bills. The security is the salt revenue from which the loan is to be repaid in monthly instalments, but the proviso appears in the agreement that the loan is to be repaid from the Consortium emergency loan if the latter materializes. Reuter's correspondent at Peking telegraphed on February 19, the day after the loan was signed, that the British, American and French bankers had not received authority to proceed with the consortium loan. He also expresses regret that the Japanese did not consider necessary safeguards regarding expenditure, disbandment of soldiery and peace measures with the South, as were being insisted upon by the other bankers. The loan has caused further dissatisfaction throughout the country, but Peking pleads that it had to have the money to meet the Chinese New Year settlement.

Siberian Trade Impetus

D. T. Magula of the American Committee of Siberian Agricultural Co-operative Unions states that 1920 will be a banner year for American-Siberian business. He reports improvements in the harbor of Vladivostok, together with increased shipping and transportation facilities for American goods.

The Russian Volunteer Fleet, which recently opened offices in San Francisco, has announced that it has four 10,000-ton ships ready for Pacific business. The chief value of this fleet's part in business relations between the two countries will be that it will eliminate the necessity for shipping goods to Japan, and then transshipping them to Vladivostok, or other Siberian ports. At present, the cost of shipping from Japan to Vladivostok is very nearly equal to that of shipping from America to Japan. This is one of the methods adopted by Japan to protect her interest in Siberia.

Siberian business men are glad to learn that the United States has decided to maintain her Railroad Commission in Siberia. The work of Col. Stevens and his associates in protecting and developing the Trans-Siberian Railroad is greatly appreciated.

Mr. Berseneff, who was official commercial representative of the Omak Government, has returned to Siberia, enthusiastic regarding the possibilities of future business.

Engineering, Financial, Industrial and Commercial News

RAILWAYS

The Changchow-Amoy Railway.—The railway from Amoy to Changchow which is only fifty li in length will be extended for a distance of thirty to forty li beyond Changchow. The projected extension is under survey, and it is calculated that after the new section is completed, the railway will be able to make a profit of \$300,000 a year.

The Kiangsi-Kuangtung Railway.—Japan has long been working hard to obtain the concession for the construction of the railway line between Nanchang and Chiaochoy, says the "Peking Daily News." The gentry of Kiangsi and Kuangtung provinces some time ago decided to construct the line themselves without resorting to foreign loans; but their scheme was frustrated by the civil war. The Kuangtung authorities have addressed a telegram to the Tuchun of Kiangsi stating that should they procrastinate, Japan will certainly step in, and that steps should be taken at once to construct the line. It has been agreed by the two provinces that a company should be organized, and the local authorities should do their best to urge the merchants to subscribe shares.

Changsha-Changteh Project.—Peking newspapers report that the Chinese authorities are contemplating the construction of a line between Changsha and Changteh in Hunan Province. Attention must be called to the fact that this line is already pledged under the contract held by Messrs. Pauling & Co., of London, for the building of a line from Shasi, on the Yangtze River, to Shingyifu in Kweichow Province.

Krupp Works Show Loss.—For the first time since the foundation of the Krupp arms industry at Essen the balance sheet of the concern this year shows a loss. The deficit amounts to 36,000,000 marks (\$7,200,000), but it is covered by a balance brought forward and a special reserve of 20,000,000 marks (\$4,000,000).

The Krupp works are at present constructing locomotives, freight trucks, agricultural machinery and moving picture apparatus instead of guns.

Japan and the Chinese Eastern Railway.—Concerning the state of affairs in the Chinese Eastern Railway, Mr. Hsu Nai-lin, Civil Governor of Kirin, reported to the Peking Government as follows:—"According to the report of an agent the Japanese are endeavoring to assist Semenoff in his activities in the eastern part of Irkutsk, and in return they are to obtain the mining and forestry rights of that region. Semenoff has sent a delegate to Japan in this connection. It is also reported that the Japanese coaxed the Russians to increase their troops along the Chinese Eastern Railway and to base such action on the ground that the Chinese troops along this railway are neglecting their duty. That the Japanese are anxious to grasp the right of protecting the Chinese Eastern Railway is a general belief. The very fact that the Japanese are said to be assisting the Bolsheviks to create trouble round about this vicinity is conceivably a means of attaining this end, etc."

Projected Kalgan and Kiakta Railway.—According to the "Shun Tien Shih Pao," Gen. Hsu Shu-cheng, who was appointed the Superintendent of the proposed Kalgan-Kiakta Line, being anxious to see it built at once had an interview with Mr. Tseng Yu-chien, Minister of Communications, and discussed the matter with him. It is understood that the road will be built with the surplus of the Peking-Hankow and the Peking-Suiyuan railways. A survey will be made in May this year.

Extension of Yueh-Han Railway.—The Ministry of Communications of the Canton Military Government has again ordered the President and Vice-President of the Yueh-Han Railway Company to complete the line from Shiuchow to Pingshek. Some time ago the Yueh-Han Railway Company sent an engineering squad to investigate conditions along the line, and it has submitted a report that the cost for construction of the line would approximately be one million dollars. The President and Vice-President, seeing that the Railway Company's coffers are depleted, and that it is financially impossible for the Railway Company to undertake the extension at present, have requested the Ministry of Communications to supply money for constructing the line.

American Locomotives for Belgium.—Contracts for the building of seventy-five railroad locomotives for the Belgian government have been signed by the American Locomotive Company. They are of a new design and construction will be delayed for weeks while plans are being prepared.

The South Western Provinces' Railway Scheme.—The Canton Military Government has issued another instruction to the Tuchuns and Shenchangs of Yunnan, Kueichow, Szechuan, Shensi, Kuangtung, Kuangsi, Hunan and Fukien, pointing out the importance of the immediate construction of railways in their provinces in order to secure prosperity and facility of communications in the country. They are informed of the establishment of the Office of the Director-General of Railway Construction and urged to co-operate, etc. As it has been discovered that the main object of the scheme was to secure foreign loans and to strengthen the positions of the southern leaders, the President has decided to lodge a protest with the South, and notify the Foreign Powers of his decision not to bear any responsibility for any loans concluded without the approval of the Central Government. A mandate will also be promulgated informing the public of the sinister motives of this railway scheme.

The unified control of the railroads of South-west China was planned long ago. It is reported that the following appointments were made at a recent meeting of the Directors of the Southern Military Government:—

Associate Directors for Szechuan—Hsun Ke-wu and Yang Shu-tsan, for Kwangtung—Moh Yung-sin and Chang Ching-fan, for Kwangsi—Tang Hou-ming and Li Chin-chen, for Hunan—Tang Yen-kai, for Yunnan—Tang Chi-yao, for Kweichow—Liu Shen-si, for Shensi—Yu Yeu-jen and Chang Fan, for Fukien—Lin Bao-yi and Cheng Chun-ming.

New Railway Venture in North Chosen.—A plan has for some time past been under consideration to establish a railway company in Korea under the name of the Hokusen Kogyo Tetsudo. The promoters, it is understood, filed on December 22 last an application with the Government-General for permission to do so. In addition to the construction of a railway through the northern part of Korea the projected company, when in working order, will undertake the investment of capital in afforestation, mining, and electrical and other ventures. The capital of the company is ten million yen, to be divided into 200,000 shares. One million yen will be called in as working fund immediately after the required official permission is obtained.

The Siberian Railway.—Mr. Li Chiao-ao, Chinese High Commissioner at Vladivostok, reports to the Government that the delegations of the Allied Powers at Vladivostok have formed a special committee to control the eastern part of the Siberian railway, with the intention of preventing the military factions from interfering with communication facilities. The operation field of this committee will extend to the Chinese Eastern Railway. Mr. Li asks what attitude he is to adopt towards this matter. The Government has referred this question to the Ministers of Foreign Affairs and Communications for further discussion.

TRAMWAYS

Peking Tramway.—The plan of constructing a tramway in Peking, which has remained in abeyance since the outbreak of the European War, is again under the consideration of the Peking Municipal authorities. The right to construct this line is held by the Banque Industrielle de Chine.

ROADS

Roads in Kwangtung Province.—The Managing Director of the Canton-Samshui Railway Company has recently proposed to construct a motor road from Fatshan to Kuanshan. The proposed road is 15 miles long and will have three stations to be located at Lansek, Shuitang and Kuanshan. It is estimated to cost more than \$400,000.

Road Construction Company.—Some of the leading business men in Japan have formed a company with a capital of several million yen for the purpose of undertaking road construction contracts.

SHIPBUILDING

A Reinforced Concrete Motor Vessel.—The motor vessel *Cochin-Chine*—the first reinforced ship of considerable size to be constructed in the East—recently arrived at Singapore from Saigon with a cargo of 1,000 tons of rice. The vessel is said to be a credit to the enterprise of Messrs. Brossard & Mopin, reinforced concrete specialists, of Saigon, Tientsin, Singapore, etc., by whom she was

constructed at Saigon. The *Cochin-Chine* is 270 feet long and 38 feet broad and is constructed on a specially designed cellular system combining very strong resistance with lightness. She has two 500 horse power Diesel motor engines, which were procured in America from Mackintosh & Seymour, who are well-known makers of this type of engine in America. The maiden trip down to Singapore from Saigon was made in heavy weather but the vessel behaved admirably, and Capt. Jourdan expresses great satisfaction with her sea-going qualities. She is capable of carrying altogether 2,000 tons of cargo, and is intended to trade between Singapore, Saigon and Haiphong.

Japan to Build 24 Warships.—The Japanese Government has decided to build two battle cruisers and twenty-two other warships beginning the next fiscal year and will submit estimates for these ships to the next session of the Diet for approval, according to the vernacular press of Tokio.

The 40,000-ton battle cruisers would cost a total of \$60,000,000, three light cruisers of 5,000 tons at a combined cost of \$13,500,000, six destroyers of 800 tons at \$4,800,000, twelve submarines of 1,000 tons each to cost a total of \$15,000,000 and three river gunboats at \$1,125,000, the combined cost of all the boats being \$94,425,000. The expenditure would be spread over three years.

The building of the battle cruisers would complete the "eight and eight" squadron which has been decided upon by Japan as necessary for the defence of the country.

INDUSTRIAL

Kiaochow Bay Salt Areas.—According to the latest investigation of the Civil Administration of Tsingtao, the total area of the salt-fields along the shore of Kiaochow Bay amounts to 2,630 *cho* (one *cho* being equivalent to 2.45 acres). A vast area comprising 6,765 *cho* convertible into salt-fields, is still left in its undeveloped state. The amount of salt-manufactured in 1918 was 300 million catties, which was increased to 450 million catties during last year. The output this year is expected to exceed 600 million catties.

Cloth Making in China.—Two American business men who have returned from Kaoyang have reported that this small city produces \$21,000,000 worth of cloth annually, woven on looms in the homes of the country people and taken to the city to be sold and dyed.

AVIATION

China Building Planes.—The work of building three aeroplanes, which had been ordered by the Chinese Naval Ministry, has been completed by the Foochow Dockyard. These planes are of the biplane type and each has a seating capacity for two persons. They are now being tested and have given highly satisfactory results. The building of these machines was carried out under the supervision of a number of foreign-trained Chinese engineers and the different parts of the planes were mostly hand made. A bigger one designed to accommodate from 16 to 25 passengers is being planned.

Tokyo-Peking Flight Project.—Mr. Nagaya, Director of the Japan Aeronautic Association, made a trip to Antung to study landing places connected with the intended flight between Tokyo and Peking. He states that the aerial trip will be made some time in April or May, by using a 250 h.p. machine in the possession of the Association. Either Mr. Yamagata or Mr. Sato will operate the machine.

Hongkong a World Junction.—Commodore Beaumont, President of the Commission which is arranging for the American Aerial Derby around the world, remarked at a meeting at Hongkong that the Colony of Hongkong held the distinction of being on the new official wall map of the world's airways prepared by the Aeronautic Maps Association of New York, which was prepared specially to show possible airways and air-routes in relation to world traffic and commerce where aircraft could solve difficult problems of transportation. The Chairman of the Chamber of Commerce moved that "in opinion of this meeting an Aviation Club should be formed in Hongkong having as its object the encouragement and expansion of commercial aviation in general and its application to this port in particular." The resolution was carried unanimously.

Chinese Aerial Regulations.—Six regulations have been drawn up at Peking for the purpose of enlarging China's aerial forces. The principal points are (1) to train a larger force for service; (2) to fix aerial stations throughout the country; (3) to form an aerial league; (4) to encourage aerial enterprises among the people; (5) to subscribe a fund for the families of those killed in aerial service and (6) to establish a bureau to translate foreign books on aerial affairs.

HARBORS

Japanese Money for Hulutao!—It is reported that the old scheme to construct an efficient port at Hulutao is being revived as a rival to the proposed ice-free port at Tachingho. Mr. Chow Chou-hsiang, former Civil Governor of Hunan, is mentioned as Director of Construction, and it is said that a loan is being arranged with Japanese interests.

Naval Base Near Lungkow.—According to the "Kung Yen Pao," Admiral Sah, Minister of the Chinese Navy, has decided to construct a naval port in the vicinity of Lungkow with necessary fortifications. When the plans, which are now being discussed among high officers, are fully drawn up, the matter will be placed before a cabinet meeting for approval.

ELECTRICAL ENTERPRISES

Yangtze Water Power.—According to a report from Szechuan, a series of experiments was carried out under the direction of a British engineer at a place below Chungking known among the Chinese as Sanhsia. It was discovered that the velocity of water there is sufficiently powerful to generate 3,282,400 h.p., far stronger than the force of the Niagara Falls. A plan to establish a large electric power-house at a place near Tsing-shihhsia in Wushan Hsien, in order to supply motive power to regions along the Yangtze Valley, is contemplated by British and American capitalists and Mr. Liang Shih-i. It is said that the amount of capital required for the enterprise will run up to £2,250,000, which will provide for the construction of eight locks at Wushan, Kueinchow, Anping, Yunyung, Siaokiang, Chunchow, and Tsingchow and all other necessary expenses including the cost of machinery and installation. In last issue the FAR EASTERN REVIEW dealt with this subject.

Shanghai Electricity Cheaper.—The Shanghai Electricity Department announced recently that a seven per cent. reduction is to be made in the prices charged for electric light, heat and power.

Y.75,000,000 for Hydro-Electric Plant.—A group of leading business men in Nagoya and Tokyo, Japan, are filing with the authorities application for permission to utilize the water of the Tenryu river running through Nagano and Shizuoka Prefectures, with a view to establishing a hydro-electric company in Nagoya under the name of the Tenryugawa Jiryoku Denki Kabushiki Kaisha. The capital is fixed at Y.75,000,000. It is said that they will put up several power stations near Ashimojo, Ina-gun, Nagano Prefecture, and other places along the river. It is expected that part of the company's current will be transmitted to Tokyo at a pressure of 100,000 volts.

British Protest Against Mitsui Wireless.—A Peking despatch to the "Asahi" states that the Marconi Company has caused the British Minister to enter a formal protest with the Chinese Navy Department against a wireless contract entered into between the Mitsui Company and the Chinese Government last year.

Wireless for Kobe.—The Hyogo Prefectural authorities invited the principal Kobe shipping agencies to contribute towards the fund for providing a wireless telegraph apparatus at the Marine Observatory now under construction at Ujino-yama, Kobe. It is now reported by the "Kobe Shimbun" that Y.100,000 out of Y.150,000 has already been promised by the N.Y.K., T.K.K. and O.S.K. combined while for the remainder the Governor asked for private contributions.

New Lighting System for Woosung.—The Woosung Electric Lighting Co. has taken a long time in its formation, owing to the necessity of obtaining a charter from the Ministry of Agriculture and Commerce, Peking, and partly to the difficulties in securing a suitable site for the power station. But no time seems to have been wasted after the initial stage, as the power station and a substantial building to be used as offices, on a plot of ground north of the Railway Bridge in the West Market in Woosung, are almost completely built. If all goes well, the company expects to give the Woosung public electric light by the end of February. At present, the plant provided is of the alternate-current type, and its capacity will light over 2,000 lamps.

Kobe to Increase Electric Current.—The Kobe Municipality intends to increase its present three dynamo installation which is supposed to produce 12,000 kilowatts to one of four stands so as to obtain 24,500 kilowatts for tram-car traction and lighting. The proposed new dynamo will probably be set up at Minatogawa. The Municipality calculates the following figures for the extension works: The second tramway construction, Y.9,099,520; the extension in dynamos, Y.4,048,000; electric supply (additional), Y.2,401,571; the road extension for tramway, Y.14,887,233. Total Y.30,436,424. The above sum is to be defrayed by loans over a period extending from this fiscal year to 1923.

Largest Steam Turbines in Far East.—Two 25,000 kilowatt steam-driven turbine units have been ordered from the Westinghouse Electric and Manufacturing Company, East Pittsburg, for shipment to Japan. When installed they will complete the largest steam-driven electrical installation in the Far East, now being erected at Osaka, Japan, for the Osaka Electric Light Company. This company furnishes light and power to street railways, steel plants, shipyards, copper refining plants, paper mills, electro-chemical installations, etc. These two new units will bring the capacity of this plant up to 100,000 horsepower.

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Condensing plants and pumps
Steam fuel economizers and forced draft fans
Steam engines, boilers and parts
Stokers, feed-water heaters and purifiers
Air washers and spray cooling systems
Hydraulic turbines and water wheels
Evaporators, oil extractors and purifiers
Valves, pipe and fittings

Electrical Supplies

Motors, generators, transformers and control-
ling apparatus
Storage batteries and dry cells
Bare and insulated wire and cable
Telephones, switchboards, bells and accessories
Meters, instruments, line hardware and tools
X-Ray and medical equipment
Lamps, fans, wiring devices, fixtures and
glassware
Domestic appliances for heating, cooking, etc.
Electric commercial and pleasure vehicles

Mechanical Supplies

Machine shop equipment
Mechanical transmission equipment
Pumps, meters, instruments and gauges
Stationary and marine oil engines
Pipe and pipe fittings
Belting, packing and asbestos mechanical goods
Flour, rice and oil mill machinery
Compressors and drilling equipments; blasting
materials
Surveying, drafting and assaying instruments
and supplies
Scales, vaults, tractors, trucks and road-making
materials

Railway Supplies

Locomotives
Freight and Passenger Cars
Bridges and Turntables
Rails, Couplers, Crossings and Switches
Railway Specialties and Stores

Building Supplies

Roofing, glass and hardware
Sherwin-Williams paints and varnishes
Red and white lead
Concrete reinforcing bars and triangle mesh
Plumbing, heating and wiring devices

GENERAL IMPORTERS AND EXPORTERS



WELL established and widely connected banking correspondents in all the market centers of the Far East provide for Irving customers reliable and responsive sources of information and service facilities for carrying out banking and commercial operations in every country of the Orient.

IRVING NATIONAL BANK

WOOLWORTH BUILDING, NEW YORK, U.S.A.

*Commercial Bank
National and Inter-National*

American Wireless Scheme.—A Radio Corporation of America has been formed to operate commercial wireless between America, Britain, France, Scandinavia, China and Japan. The capital is \$20,000,000. The rates will be a third less than the cables. It is understood that the corporation will be controlled by the General Electric Company which has absorbed the Anglo-American and Marconi's interests. Operations will be begun as soon as the Government returns the wireless stations operated during the war.

Phone to Connect Shanghai and Hangchow.—A long distance telephone between Shanghai and Hangchow for military use will be installed by order of General Lu Yung-hsiang, Tuchun of Chekiang. The line will connect the Office of the Defense Commissioner at Shanghai, the Military Commissioner's yamen at Kashing, the headquarters of the Commander-in-chief at Sunkiang and the Office of the Military Governor at Hangchow. It is estimated that the cost of the apparatus and installment will be \$8,000. The telegraph poles along the Shanghai-Hangchow Railway will be made use of.

MINING

Sino-Foreign Mining Enterprises.—The Peking Government has sent instructions to the local authorities of Hunan and Hupeh Provinces to inform the mine owners that it is absolutely necessary for them to obtain official sanction before they enter into any agreement with foreigners for the working of mines. At the same time the various legations at Peking were informed through the Waichiaopu to the effect that any agreement concluded with Chinese without the previous knowledge of the central government will be invalid.

Mining in South-West Yunnan.—A report from Rangoon states that a party of 23 engineers, drill-runners, diamond setters and gas engine experts from America, representing the New York Orient Mines Company, and exploration and mining engineers, representing Messrs. E. J. Longyear & Co., arrived there en route for south-western Yunnan, via Bahmo, where they are to spend about two years prospecting, and developing existing mining properties. The party is in charge of Mr. Clifford Harris, and expert mining engineer, and Mr. C. H. Smith, who is the chemist and analyst of the party. Dr. Oscar C. West is the medical man, while Mrs. West will act as nurse. Mr. Louis Peterssen is the foreman of the drill-runners and diamond setters who include Norwegians and Swedes as well as Americans. Mr. John Wellington Finch is the Manager of the Orient Mines, Limited, and the organizer of the party.

The Seoul Mining Company.—During the month of January 12,500 tons of ore were sent to the Tulmichung mill from the Tulmichung and Tong Ahn mines, resulting in a gross production of Y.158,909.26. The Suan mill continues shut down during the severe winter weather, owing to the prohibitive cost of fuel for heating the mill. Mining operations in the Suan mine are proceeding, and the ore is being stored at the mill for treatment in the Spring.

CONSTRUCTION

Extension of the Tehchow Arsenal.—Arrangements having been made with the Central Government, the Tehchow Arsenal will be supplied with a sum of \$1,200,000 to purchase two sets of

machinery for the manufacture of rifles and ammunition. When the new machinery is installed the Arsenal's manufacturing power will be doubled, says a Tientsin paper.

Wuchang Waterworks.—Just before the war a scheme for establishing a waterworks in Wuchang was launched, but owing to the failure of funds, it had to be abandoned. Lately, however, this scheme has been revived, says the "North-China Daily News" Correspondent, and it looked for a while as though we here were going to be as up-to-date as our fellows in Hankow. It appears however, that the project has again been held up owing to the refusal of the Board of Industry to grant a permit to proceed with the work. I believe that efforts are being made to get over this difficulty and perhaps even yet the time may come when the water tap will usurp the place of the water coolie and another bit of old China will have disappeared from our midst.

New Bund at Canton.—The vernacular papers report that the Canton Municipality is making plans to open up and construct a bund along the Honam river front. Surveyors have been sent out to survey the route for the proposed bund, and to find out the exact area of all public lands in that section.

FINANCIAL

A \$6,000,000 Loan in Kirin.—Information has been received in Peking to the effect that on account of the financial stringency now prevailing in the province, the Kirin Civil Governor is contemplating a loan of \$6,000,000 from the local branch of the Yokohama Specie Bank, on the security of certain unmovable properties and the Yung Hang Local Bank. But the Japanese authorities only consent to extending a loan of \$3,000,000, which counter-proposal does not meet with the approval of the Civil Governor who is endeavoring to get things through with the aid of the financial authorities in the Capital.

The Bank of East Asia, Ltd.—We learn from authoritative sources that the Bank of East Asia, Ltd., is organizing a branch office at Shanghai to commence business early in March this year. They have already acquired the ground floor of No. 30 The Bund, a large and substantial structure between Kiukiang and Nanking Road to accommodate that branch, which will be under the charge of Mr. Li Tse-fong now assistant Manager of the parent Bank of Hongkong. Besides being a University graduate and a man of liberal education, Mr. Li is also an experienced and successful business man and was for several years managing partner of the well-known Wo Fat Sing firm which operates the Lai Hing S.S. Co., Ltd., The Hung Hing S.S. Co., Ltd., and The Luen Hing S.S. Co., Ltd. The Bank was incorporated in Hongkong under the Companies' Ordinances, having a fully paid-up Capital of two million dollars all of which was subscribed by the Chinese. The Bank was opened for business in January last year and the result of the first year's working was very satisfactory having a net profit of more than three hundred and seventy thousand dollars. It has now a deposit of more than four million dollars and a reserve fund of two hundred thousand. The Bank has recently bought in Hongkong a valuable leasehold property in the financial section of the City known as No. 10 and 10A Des Vaux Road as premises for its Head Office. Besides its branch in Saigon which was opened a few months ago, and its branch in Shanghai which will be opened shortly, there are two other branches in the course of organization for Canton and for Haiphong.

Sino-American Bank.—The Commercial and Industrial Bank was opened at Peking on February 6. Mr. J. A. Thomas, First Vice-President, and Hsu En-yuan, Second Vice-President, gave a reception, the guests including many notable Chinese and foreigners.

China's Salt Revenue.—The net salt revenue, after meeting administrative expenses, paid into the group banks during 1919 amounted to \$80,636,503 an increase of \$9,070,983 over 1918. All obligations secured on the salt revenue were fully met and the surplus funds released to the Chinese Government amounted to \$75,213,449, including the contribution of \$6,205,756 received from the Maritime Customs. Of this amount, however, some 26 millions represent sums either retained locally or appropriated by the provincial authorities or military commanders.

Tea Industrial Bank.—Mr. Chin Wei-wen, a wealthy tea merchant of Anhui Province, China, has applied to the Ministry of Finance, Agriculture and Commerce at Peking for permission to organize a Tea Industrial Bank in Shanghai, Peking and Anking with a capital of \$5,000,000. He has just returned from a tour in Japan, Ceylon and India for the study of the tea industry there.

MISCELLANEOUS

University for Manchuria.—The authorities in the Manchurian provinces are reported to be making preparation for the establishment of a University for the Three Eastern Provinces. At a recent meeting of the educational authorities in Manchuria, a sum of \$1,000,000 was voted for the annual expenditure of the institution, in addition to which \$2,000,000 will be raised for the initial outlay in connection with the establishment of the University.

Forests for China.—In order to encourage the observance of Arbor Day, and increase its significance throughout China, says the "North-China Daily News," the College of Agriculture and Forestry of the University of Nanking has started a campaign among the lower government and mission schools for the development of school nurseries. Nurseries may be a half *mow* or one *mow* in size, containing six and 10 tree species respectively, and capable of producing from 16,000 to 32,000 young trees. Seeds are furnished at less than cost, at \$1 and \$2 plus postage for the two sized nurseries. Each nursery contains one or more of the economic trees, such as the oil tree, vegetable tallow, etc.

Inflammatory Pamphlets Amongst Mohammedans.—Mah Fu-hsiang, Commissioner of Ninghsia, and Ma Chi, Commissioner of Kokonor, report that a foreign Buddhist priest is issuing most inflammatory pamphlets in Arabic which are calculated to cause a Mohammedan uprising.

Arms Contracts.—Owing to the foreign Legations' protest against the import of Italian munitions to China, a circular telegram has been sent to the provinces to cancel all contracts, and if any has already been taken delivery of, the same should be returned.

Chinese Mission to Europe.—Mr. S. T. Sze, brother of the Chinese Minister in London, has arrived in Europe in charge of the Chinese Government Mission to visit the devastated areas of France and study commercial conditions and methods in Great Britain and on the Continent.

FOR SALE

Plate and Shape Spacing Table With Multiple Punch

Bought for use by an American shipbuilding company under the following specifications and never used. Have never been removed from their original packing:—

SPECIFICATIONS

Plate and Shape Spacing Table with Multiple Punch suitable for punching medium steel plates up to 30" wide, angles up to 8" x 6", and beams and channels 6" to 15" for both web and flange punching on material 54' long.

Spacing Table, hand operated. Frame of steel construction about 60' long on each side of punch to allow unobstructed access for operating and setting.

Cast-iron carrying rolls, designed to properly support the specified class of material, located every 5' for plates and every 10' for angles, I-beams and channels. Angles and channels for flange punching, punched in pairs, back to back; I-beams punched singly. The rollers vertically adjustable in relation to the dies on the punch for punching the flanges, beams or channels 6' to 15', as specified above. Adjustment obtained by means of screws and worms interconnected by a shaft operated by spider or handwheel located near punch within easy reach of the operator.

Roller frames supported on springs to permit of carrying material through punch free and unobstructed from dies. Rack is of steel cut from the solid and made in sections. Spacing carriages hand operated by means of handwheels and releases lever. Frame all steel and fitted with hardened steel roller bearings.

The desired spacing is obtained automatically, and at the stopping point the

carriage is effectively locked against forward or backward movement until released by operator. Spacing carriage clamp is of steel designed to grip plates and angles singly and in pairs for flange punching, and I-beams singly for both web and flange punching, all without change of adjustment. Trailer table equipped for guiding plates through the punch while punching.

Length required for table and punch about 128'.

Punch has capacity to punch simultaneously two 1 1/8" diam. holes through one-inch medium steel. Machine heavily built of A frame double housing type 30" clear between housings. Operated by not less than 35 strokes per minute and especially designed to operate in connection with the spacing table above described, and for punching the size and class of material specified. All gears are covered.

Space occupied by punch, 3' 6" x 10'. Machine heavily built and amply strong. Operated by foot treadle which may be locked in position when desired to run machine continuously.

Weight, Punch and Table complete, without electrical equipment, approximately 55,000-lbs. Is furnished with eight punching units with minimum adjustment center to center of not more than 2 1/4"; two controller levers across face of machine for controlling any combination

of gags from the operating side; one set of toggles for gauging clamps for guiding angles of I-beams, and channels for punching flanges.

Housings or uprights of steel, gags, cast steel cut from the solid. Shafts, open hearth steel. Bearing of ample size and bronze bushed. All running parts scraped to perfect bearing and provided with grooves for proper distribution of lubricants. Clutch jaws, or wearing surfaces, on moving clutch and gear, of tempered steel which permits of easy removal when worn. Clutch disengages automatically at each stroke. Adjustable automatic stop at any desired point in the down stroke. Strippers of suitable kind provided for punching specified kind of material.

Foundation plans giving accurately the spacing anchor bolts, together with all necessary information as will permit laying of foundation will be furnished prior to delivery. All necessary instructions for erection and operation will be furnished with machine upon delivery.

TESTED to punch simultaneously not less than 35 1 1/8" diam. pairs of holes in one-inch medium steel plate on consecutive strokes in one minute, with a clearance between punch and die 1/16".

Cost—\$37,000.

Thomas Multiple Punch and Spacing Table

Thomas Multiple Punch and Spacing Table
capable of handling plates 9' wide by 40' long.

SPECIFICATIONS

Ram pressure, 1,600,000 pounds. This pressure is capable of shearing 32 sq. inches of metal flat at each stroke of the punch.

Distance clear between housings, 9' 2", stroke 3".

Number of strokes per minute, 18.

Diameter of Shaft, 12".

Gear Ratio, 15 to 1.

Weight Multiple Punch, 140,000-lbs.

Weight of Spacing Table, 40,000-lbs.

Double housing central ram type.

Punches fitted with two separate sets of punching tools in order to permit the punching of lines of holes across the plate, which are not in line with each other.

Punching tools:

Machine fitted with 48 sets of separately adjustable punching tools, adjustable down to 2 1/4" and controlled by eight levers, 4 levers for each row of punching tools. Spindles may be of unequal lengths

in order to reduce the shearing effect and relieve the strain on the machine. For punching rows of holes across the plate where the thickness would exceed the capacity of the punch the holes may be punched by two strokes of the punch, leaving the pacing carriage stationary. The spacing table is automatic and requires no attention from the operator except the manipulation of hand levers for controlling gags for operating. All gears are covered. Cost, \$13,500.

MERCHANT SHIPBUILDING CORPORATION

Harriman, Pennsylvania, U.S.A.